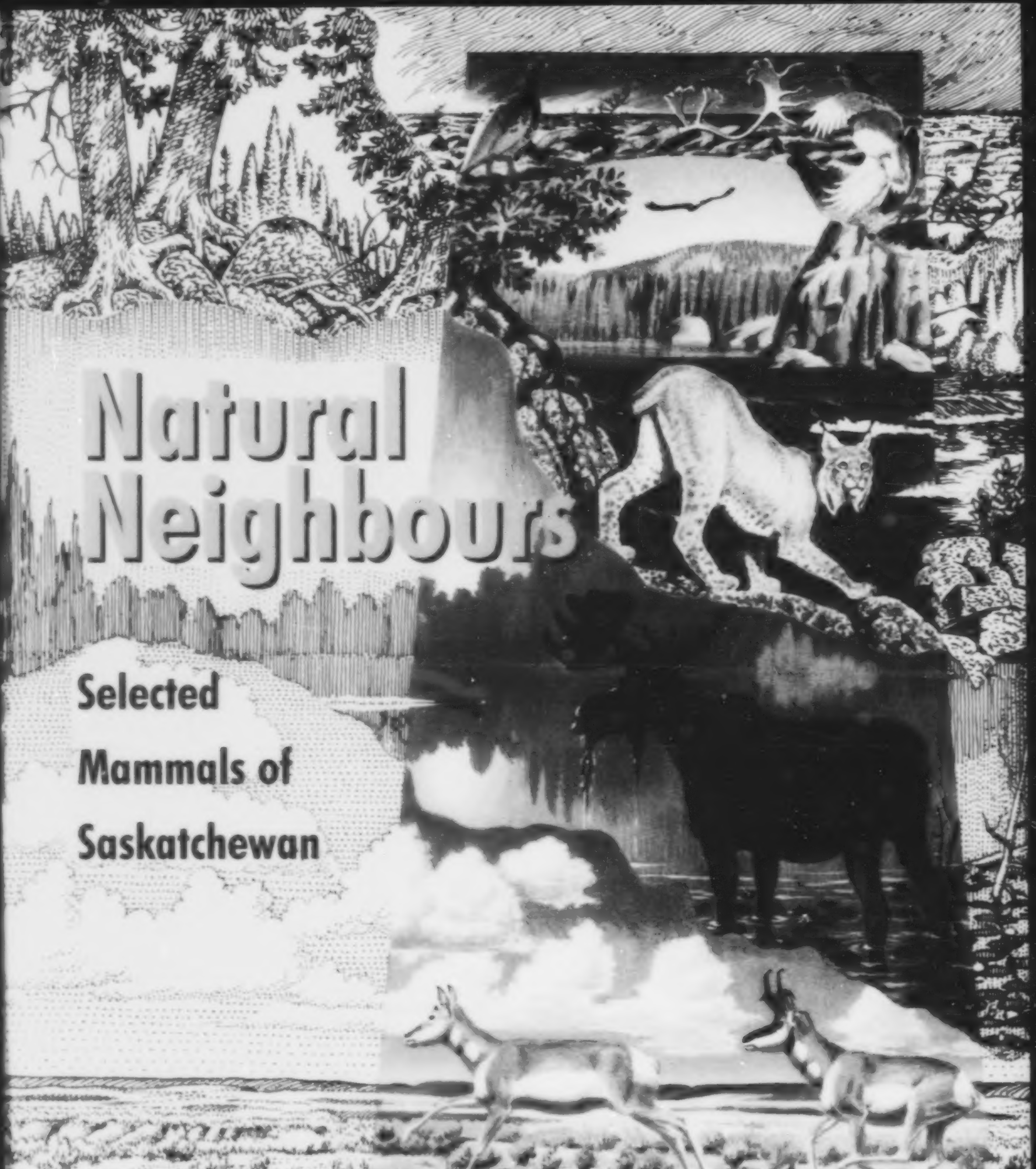
Natural Neighbours

Selected Mammals of Saskatchewan



DISCOVER SASKATCHEWAN—NATURAL NEIGHBOURS

Natural Neighbours

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Natural Neighbours

Selected Mammals of Saskatchewan

Prepared and edited by
Saskatchewan Environment and Resource Management

Saskatchewan
Environment
and Resource
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Foreword

This book is one of several planned for a Discover Saskatchewan sub-series on the flora and fauna of Saskatchewan. This first book, *Natural Neighbours: Selected Mammals of Saskatchewan*, focuses on selected mammals found in Saskatchewan. The mammals chosen for this book tend to be widely distributed in the province, the most well known by the public and the most likely to be seen. A few species occur only in southern Saskatchewan, but are fairly unique and/or endangered. The book describes the appearance, habits, food, habitat, survival strategies, ecological relationships, status and range of these mammals.

Over the next several years, further books will describe interconnected animal and plant life components representative of Saskatchewan ecosystems. The next will contain selected birds of the province. Further books may focus on reptiles and amphibians, trees and shrubs, native plants, fish, and insects.

Natural Neighbours is an updated version of the Resource Reader, published in the late 1960s and widely used in schools. The Resource Reader was developed at a time when ecosystem-based management was not as much a part of environmental and resource management as it is today. *Natural Neighbours* was developed to not only give information on species, but also to promote a better understanding of our human partnership with the environment, which requires that we think, plan and act in terms of ecosystems.

Natural Neighbours will complement other publications that describe Saskatchewan's ecozones and ecoregions, the land classification system that forms a basis for ecosystem management. These publications include *The Ecoregions of Saskatchewan*, a technical document describing each ecozone, ecoregion and landscape area in the province; the Ecoregions of Saskatchewan poster map, and the Ecoregions of Saskatchewan CD-ROM and Teachers Guide. The ecological land classification system of Saskatchewan is part of a common framework across Canada, so that ecozones and ecoregions match across provincial boundaries and have standardized names. For example the Prairie Ecozone extends into Manitoba and Alberta. *A National Ecological Framework for Canada*, published in 1996, describes the ecozones and ecoregions of Canada. In 1997, *Ecological Regions of North America* was published and followed the same principles as the Canadian and Saskatchewan frameworks. As well, Saskatchewan State of the Environment reports focus on reporting the stresses, conditions and human and environmental responses to these conditions for a different ecozone every two years.

Natural Neighbours is a co-publishing project between SERM and the Canadian Plains Research Center. SERM is responsible for writing the document, drawing on the experience of various experts in government and the academic community. CPRC is responsible for design and publishing activities. The mammals are beautifully illustrated by Paul Geraghty, a local Saskatchewan artist. Colour photos are also included.

This module on mammals describes and illustrates the richness of Saskatchewan animal life and their unique place in the different ecosystems and landscapes of the province. The module describes, where possible, places where you may observe these animals if conditions are right and if the fates agree your paths should cross.

Lynda Langford
Saskatchewan Environment
and Resource Management

Acknowledgments

Saskatchewan Environment and Resource Management (SERM) extends its appreciation to the many people who shared their knowledge, ideas and time in the preparation of this publication. Many SERM staff contributed greatly to this book, including conservation officers, biologists/ecologists and computer systems staff. Special mention goes to Ann Marshall, project coordinator/editor, who was instrumental in guiding this project to completion and Anne Seguin, contributing author, information and document compiler and one of the technical reviewers.

The illustrations penned by Paul Geraghty, a Saskatchewan artist/illustrator, greatly enhance this publication, portraying the essence and vitality of the mammals that share this province with us. The Royal Saskatchewan Museum provided some of these illustrations. The rest of the illustrations were provided by SERM.

Thanks to the many contributors and technical reviewers, listed in the reference list, from other governments, universities and institutions, who unselfishly gave of their time and knowledge.

Introduction

Natural Neighbours: Selected Mammals of Saskatchewan, the first module in this series, focuses on mammals which tend to be widely distributed in the province, well known by the public and likely to be seen. A few species occur only in southern Saskatchewan, but are fairly unique and/or endangered. The book describes the appearance, habits, food, habitat, survival strategies, ecological relationships, status and range of these selected mammals.

As an introduction to the species accounts, this book gives a brief overview of the characteristics of the class Mammalia, as well as considerations to keep in mind when viewing mammals.

The mammal species accounts in this book are arranged in order of systematic classification, as in *The Mammals of Canada*, which based its classification system on Simpson (1945). Simpson is the most popular classification system, although taxonomists do not yet agree on the exact number of orders and how some orders and families are related to each other. Therefore, you may see other arrangements of orders and families in various sources.

Systematic classification is a system whereby all forms of nature are identified and arranged into groups based on such factors as evolution, distribution, biological structure and behavior. A simplified overview of this system into smaller and smaller units has been adopted for this book:

- Kingdom Animalia — The Kingdom Animalia includes all multi-cellular creatures that rely directly or indirectly on other organisms for their nourishment.
- Phylum Chordata — The Phylum Chordata includes individuals with a notochord or rod that extends most of the length of the body, during some stage of development, and acts as a support.
- Subphyllum Vertebrata — The Subphyllum Vertebrata includes animals with a vertebrate or skeletal axis: mammals, birds, reptiles, amphibians and fishes. The bony vertebrate replaces or encloses the notochord of the Chordata.
- Class Mammalia — The Class Mammalia is discussed in further detail in the following pages.

Within the class Mammalia are several orders, which contain several families. Within these families are the genera and species, or the individual creatures that we know as the red squirrel, the wolf and so on. For example, the pronghorn is from the order Artiodactyla, family Antilocapridae, genus *Anitlocapra* and species *americana*. Genera usually have more than one species, for example, the shrew genus *Sorex* has two species in this book: *Sorex cinereus* and *Sorex haydeni*. There are also subspecies, such as in the caribou: *Rangifer tarandus groenlandicus* (barren-ground caribou) and *Rangifer tarandus caribou* (woodland caribou).

The book provides supplemental information in the appendices. Appendix 1 lists all the mammals of Saskatchewan, and Appendix 2 provides specific viewing site information. As an ecological and ecosystem perspective is used in the species accounts, Appendix 3 gives an overview of ecosystem processes and the Ecological Land Classification System of Canada and Saskatchewan. Appendix 4 provides more detailed information on the characteristics of Saskatchewan's ecozones.

What is a Mammal?

There are over 4,600 species of mammals now living on Earth. Many people recognize familiar mammals such as dogs, cats, horses, cattle, squirrels, rabbits, beavers, mice, whales, weasels and deer. We, ourselves, *Homo sapiens*, are mammals.

In Saskatchewan, there are 78 currently recognized species of wild mammals living in the province (Appendix 1). They range in size from tiny shrews to much larger species such as moose or black bear. Shrews, bats, rabbits and hares, rodents, coyotes, foxes, wolves, bears, weasels and their relatives, cougars, lynx, bobcats and deer and their relatives all contribute to the biodiversity of Saskatchewan.

Taxonomists are biologists who group and classify organisms. They have grouped all mammals, regardless of their size or where they live, into the vertebrate class Mammalia. All mammals have mammary glands and hair or fur. Mammals are also warm-blooded and have a four-chambered heart, two characteristics they share with birds.

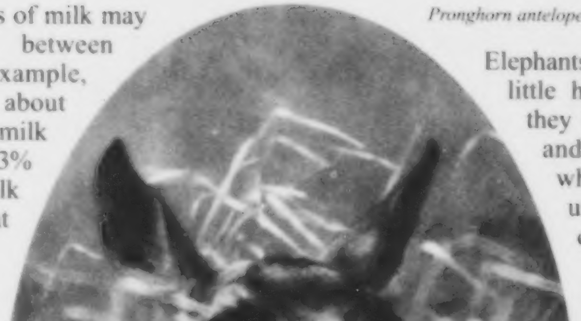
Mammals bear their young alive, with a few egg-laying exceptions. To feed their newborns, mammals produce milk in specialized glands called mammary glands. Even egg-laying mammals, namely, spiny anteaters and the duck-billed platypus suckle their young.

Milk is easily digested and nourishes mammalian young until they have developed enough to eat adult food. The amount and types of fat, protein, carbohydrate and

Red fox pups

other components of milk may differ greatly between species. For example, whale milk is about 40% fat, mouse milk contains about 13% fat and cow milk consists of about 3.7% fat.

Besides milk, mammary glands also produce compounds that protect the young against disease. Passed to offspring through her milk, these compounds from the mother continue to fight infection and disease until her offspring's immune systems are mature enough to function on their own.


Pronghorn antelope fawn

Mammals typically have some hair or are covered with fur. This provides insulation, often in camouflage colours and patterns. Snowshoe hares and long-tailed weasels both have brown fur in the summer and white fur in the winter. Some mammals do not have much hair or fur, but these species typically do not need it to protect themselves from unfavourable temperatures. Whales and porpoises have little hair, but are kept warm by a thick layer of blubber. Elephants and rhinos have little hair as well, but they have thick skins and live in places where heat loss usually is not a concern.

Both mammals and birds have four-chambered hearts. This type of heart is a more efficient pump than the three-chambered ones found in most amphibians and reptiles. The structure of the four-chambered heart prevents oxygen-depleted blood returning from the body from mixing with oxygen-rich blood that is returning to the heart from the lungs. The heart pumps blood that carries oxygen and other materials to the body's cells, and removes their harmful wastes. In addition, the circulatory system distributes heat. This keeps the temperature of all parts of the body within an acceptable range. Such a system permits warm-blooded animals such as mammals or birds to remain active under conditions that would make amphibians or reptiles sluggish or immobile.

Viewing Mammals

Though usually nearby, mammals occasionally can be a challenge to see. Not all are active during the day, when they are most likely to be observed. Many mammals are most active at night, dawn or dusk. Some species are retiring by nature, or have learned to be this way when people are close Other species live where there are few people. Some mammals are simply more abundant than others. Seeing mammals is sometimes simply a matter of luck or of being in the right place at the right time.

However, the viewing site information that we have included (Appendix 2) will help increase the odds in your favour. Tips regarding ease of observation, time of day, possible viewing locations and other pertinent advice help increase the chance of seeing the species that you are looking for. Viewing site information is more detailed for some species than for others, a result of both individual species' habits, as well as our knowledge of them.

By keeping a respectful distance and being inconspicuous, mammal-watching can be a comfortable experience for both you and the mammals themselves. Undisturbed animals behave naturally, offering us chances to learn more about how they really live their lives. If scared or forced to escape, wild animals waste precious energy and time. This may affect their ability to successfully raise their young or survive a winter. If an animal seems nervous or aggressive, move further away because you are probably too close. Dogs should be kept under control or, perhaps, left at home. Binoculars help you to get a good look and still maintain a respectful distance. The well-being of wild creatures that we observe often depends on how carefully we treat them.

Safety, for both your and for the animal that you are observing, is important. Common sense tells us that most animals are not harmful, and many happy hours can be safely spent watching them go about their business, but it is important to remember that sometimes animals can be unpredictable or possibly dangerous, depending on circumstance or the time of year. The wisdom of giving a wide berth to a black bear sow with cubs or a cow moose with calves is obvious. Adults with

Red squirrel

Snowshoe hare

young of any species can be especially aggressive if they feel threatened. Even some animals without young should be viewed with appropriate caution. A few animal diseases or parasites can affect humans. Of these, rabies, hantavirus (carried by some deer mice) and raccoon roundworm are probably the best known. See the species accounts for more information.

Some people wonder what to do if they find a young mammal that seems to be abandoned. Happily, desertion is a rare event. Many mothers leave their offspring hidden and unattended while they are away feeding, for what seems to us like a long time. Some white-tailed deer fawns can be left alone for most of a day. It is most important that you not touch, pick up, or move a fawn, young rabbit, or the like. Mammals have an excellent sense of smell, and may abandon offspring that harbour human scent. If a young mammal or litter have not been visited by a parent for a very long time, contact your local conservation officer for advice.

Wild mammals are a joy to watch. They share the earth with us and contribute to the biodiversity of our planet. In no little way, they add to the wonder of our complex world.

Species Accounts

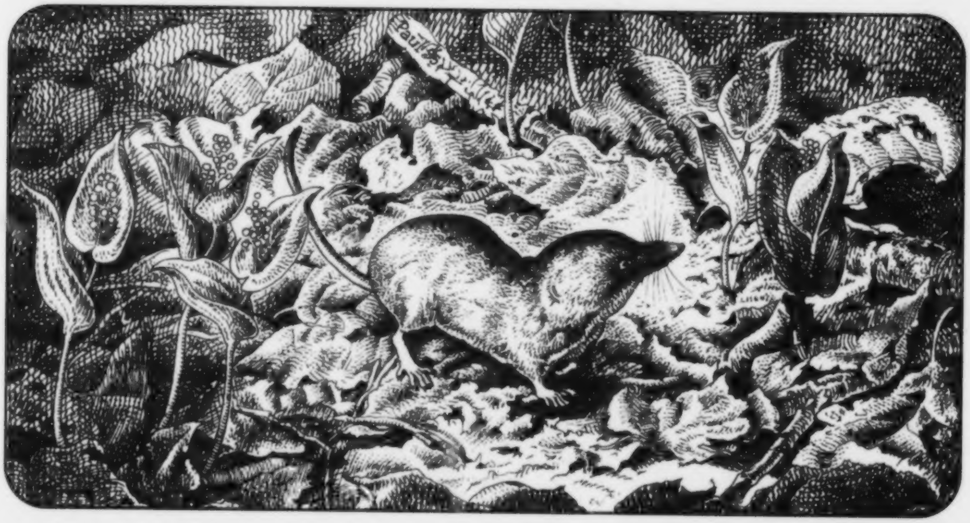
Order Insectivora

(Insect-eaters)

Shrews

Common Shrew *(Sorex cinereus)*

Prairie Shrew *(Sorex haydeni)*



Until a few years ago, the prairie shrew (then *Sorex cinereus haydeni*) was a subspecies of the masked shrew (then *Sorex cinereus*). Recently, however, taxonomists have updated this classification scheme. They divided the masked shrew into two separate species — the prairie shrew (*Sorex haydeni*) and common shrew (*Sorex cinereus*).

To a casual observer, there are no obvious differences between the common shrew and the prairie shrew. Taxonomists depend on subtle distinctions (for example, microscopic characteristics of the upper teeth) to differentiate between the two new species.

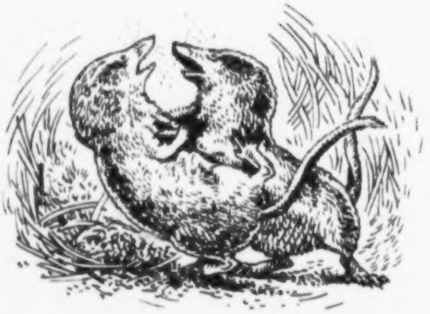
Description

Shrews are tiny animals that weigh between 3 and 7 g. They are about 8–13 cm long, including their tails which range between 2.5 and 5 cm in length. Shrews are usually dark brown or black, with greyish-white underparts. Their black-tipped tails are darker on top and lighter underneath. Shrews have long, pointed snouts and small eyes. They have short legs and their sparsely furred feet have 5 clawed toes.

Habits

Shrews are believed to be territorial and unsociable most of the time. However, during mating season, which is between late April and October, males looking for mates enter female territories. After mating, it is believed that the male leaves or is driven off by the female, and that the female raises the young alone.

Young shrews are born in a nest made by their mother. First, she makes a pile of dried grasses, leaves and moss. Then, sitting in the middle of the pile, she



Shrews fighting

weaves the nest walls with her snout. She shapes the walls with her body. She pushes against the walls until she has formed a ball-shaped nest with a hollow interior. Her nest is usually hidden under an object such as a log, stump or stone. It may have two or more exits.

Shrews usually have one litter a year. Researchers believe the young are born about 18–20 days after the adults mate. Litters range in size from 2–10 young, although four is the average. At birth, the tiny young weigh only about 0.1 g. Naked, blind and helpless, they usually curl around one another in a little ball.

Once the young are old enough to walk, the mother may move them in "caravan" style. The young form a line behind their mother and each clutches the fur or tail of the shrew in front with its mouth as the family walks to a new location.

Little is known about the development of young shrews. Probably shrews typically live only 14–18 months, perhaps because of their teeth. By that age, their teeth are usually worn down to the gums by the hard exoskeletons of the insects they eat.

Food

This tiny predator is an opportunistic feeder with a varied diet. Shrews are both insectivorous and carnivorous. They are insectivorous, because most of their diet consists of insects and their eggs, larvae and pupae. Even during the winter, shrews feed on dormant insect larvae and pupae. Shrews also eat spiders, earthworms, centipedes, salamanders, small mammals (such as young mice), baby birds, frogs, slugs, snails, carrion and tree seeds.

Quick Facts

- ✓ tiny
- ✓ order Insectivora (insect-eaters); family Soricidae (shrews)
- ✓ masked shrew recently divided into two species — common shrew and prairie shrew
- ✓ common shrew: Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones
- ✓ prairie shrew: Prairie Ecozone

Because they use so much energy, shrews need to eat every few hours. They are almost always scurrying about in search of food. They eat an enormous amount, often eating their own weight in food every 24 hours. That is why, if not released a very short time after capture, a shrew soon starves to death.

Habitat

The common shrew and the prairie shrew are the most widely distributed of all shrew species in Canada. They are found in many types of habitat, including forests, salt and freshwater shorelines, grasslands, marshes, bogs, brushland and tundra. They seem to need areas that are moist or humid.

Survival Strategies

Shrews are active off and on, day and night, throughout the year. They have high metabolisms, meaning they need and use a lot of energy. Shrews breathe more than 800 times per minute and their heart beats almost as frequently. Shrews sleep by taking hour-long naps every few hours.

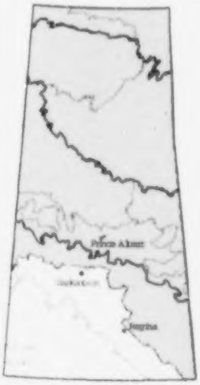
Having a fast metabolism permits these tiny mammals to stay warm during the winter. Growing longer fur for the winter also helps them to keep warm. They often hunt on runways under the snow, insulated from the cold and hidden from predators. Shrews lessen their heat loss and energy needs during the winter by spending more time inside the nest.

Shrews are fierce and are able to kill animals twice their size. They have excellent senses of smell and hearing, but poor eyesight. Shrews make a variety of noises in alarm, in defence and to attract a mate. Young shrews squeal when hungry and call if lost so their mother can find them. When exploring new areas, shrews make high-pitched twittering sounds. This is believed to be a form of echolocation that compensates for their poor eyesight. In other words, instead of seeing things, they find out where objects are located by listening to the echo of their twitter as it bounces off an object and back to them. This is similar to echolocation in bats.

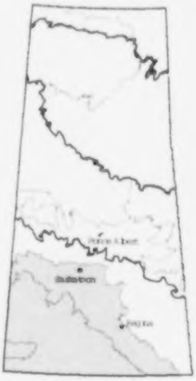
Ecological Relationships

Their predators include weasels, foxes, snakes, hawks, owls, shrikes, herons, fish and cats.

Shrews are beneficial because they eat large numbers of insects, many of which are agricultural pests. In this way, shrews help control insect numbers. In fact, in Newfoundland people introduced common shrews hoping they would help to control the larch sawfly, an insect which was destroying that province's coniferous trees. Before this introduction, common shrews were unknown in Newfoundland.



Common shrew



Prairie shrew

Status and Range

The common shrew (*S. cinereus*) is found in the Aspen Parkland Ecoregion of the Prairie Ecozone, as well as in the Boreal Plain, Boreal Shield and Taiga Shield ecozones. The prairie shrew (*S. haydeni*) is found in the Prairie Ecozone, only in the Cypress Upland, Mixed Grassland and Moist Mixed Grassland ecoregions.

Little is known about the population density or number of these shrews in the province, but they are believed to be common.

Further Reading

Banfield, A.W.F. 1974. *The Mammals of Canada.* Toronto: University of Toronto Press.

Order Chiroptera

(Bats)

Bats

Little Brown Bat *(Myotis lucifugus)*
Northern Long-eared Bat *(Myotis septentrionalis)*
Western Long-eared Bat *(Myotis evotis)*
Small-footed Bat *(Myotis ciliolabrum)*
Silver-haired Bat *(Lasionycteris noctivagans)*
Big Brown Bat *(Eptesicus fuscus)*
Red Bat *(Lasiurus borealis)*
Hoary Bat *(Lasiurus cinereus)*

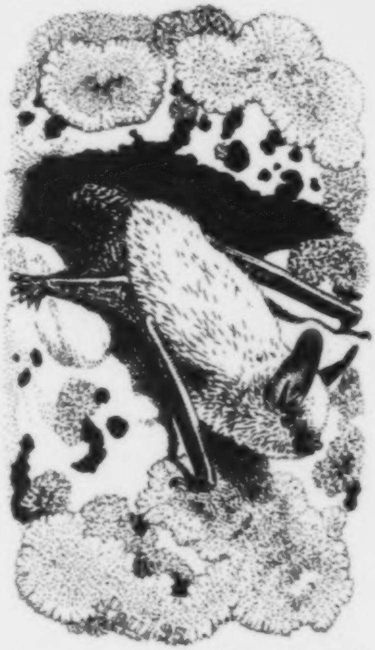
Description

There are 8 species of bats in Saskatchewan: the little brown bat, northern long-eared bat, western long-eared bat, small-footed bat, silver-haired bat, big brown bat, red bat and hoary bat (see Table 1). Small-footed and western long-eared bats are quite rare in this province.

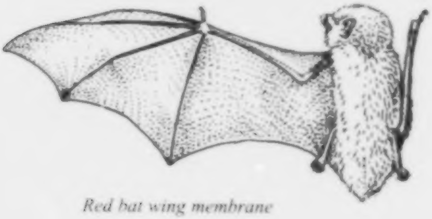
Bats are the only mammals capable of true flight. A few others, such as flying squirrels, can glide but only bats can truly fly.

Though their wings have little or no fur, the rest of their bodies are well furred. These 8 species have large ears. Their rear legs are small, with five clawed toes on each foot.

Bats are not blind, although their eyes are small.



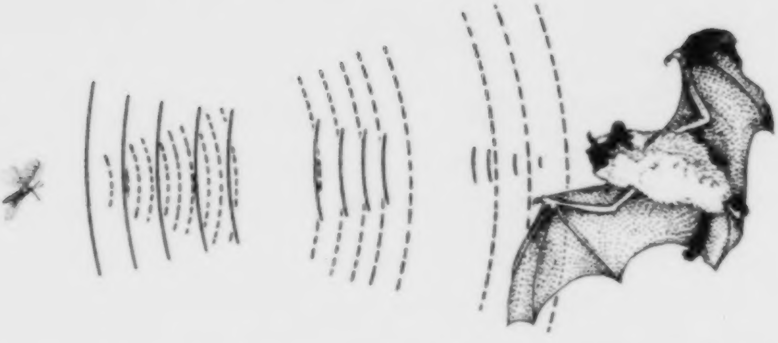
Western long-eared bat



Red bat wing membrane

Habits

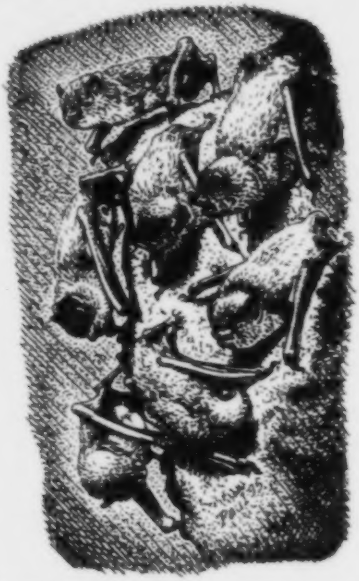
Bats are crepuscular (most active at dusk and/or dawn), nocturnal (most active at night) or a combination of both. They are able to fly in complete darkness, using sound to "see." This process



Small-footed bat echolocating mosquito by emitting sound waves (solid lines) and receiving echo (dotted lines) from mosquito

is called echolocation. They utter high-pitched sounds that usually are above the range of human hearing. Echoes result when these sounds bounce off objects. Bats interpret the echoes to find out the size, shape and distance (range) of nearby objects.

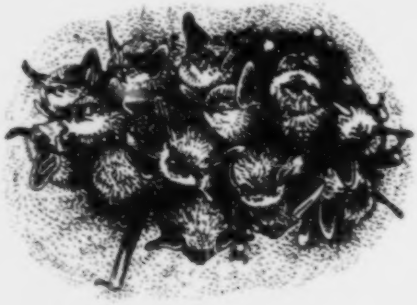
Bats hang upside down to roost (rest). They have sharp claws on the toes of their hind feet, useful for gripping. When at rest, bats usually fold their wings against their bodies.



Big brown bat nursery colony

Most small mammals reproduce very quickly and are short-lived. Bats are different: they tend to have few young and can live to a ripe old age. Little brown bats can live more than 33 years in the wild. Most bats in Saskatchewan give birth to only one young per year, although twins sometimes occur. Red bats are the exception, for females may have up to four young per litter. Young bats usually can fly and forage for at least some of their own food when approximately one month old.

Bats in Saskatchewan have two ways of coping with winter, a time when it is cold and insects are unavailable. Some, such as the red, hoary and silver-haired bats, migrate south to warmer areas where they may either remain active or hibernate. Other species hibernate rather



Northern long-eared bat hibernating colony

Table 1. Bats of Saskatchewan

Name	Weight (g)	Length (mm)	Ecozone(s)
Little Brown Bat	7.5	89	Prairie, Boreal Plain, Boreal Shield & Taiga Shield
Northern Long-eared Bat	7	84	Boreal Plain & Boreal Shield
Western Long-eared Bat	8–10	98	Prairie
Small-footed Bat	4–6	77	Prairie
Silver-haired Bat	7–12	103	Prairie, Boreal Plain & Boreal Shield
Big Brown Bat	15–22	120	Prairie, Boreal Plain & Boreal Shield
Red Bat	9–15	103	Prairie, Boreal Plain & Boreal Shield
Hoary Bat	24–30	136	Prairie, Boreal Plain, Boreal Shield & Taiga Shield

than migrate. Living off stored fat, they hibernate in sheltered spots, including caves, abandoned mines or deep rock crevices. The locations of very few hibernation sites are known in Saskatchewan, other than those discovered in buildings.

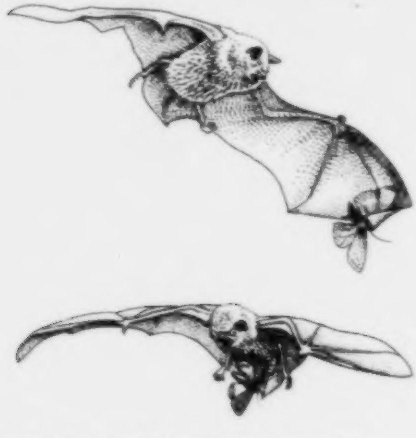
Food

All bats found in Saskatchewan are insectivores (insect-eaters) and they mostly capture insects in the air. Echolocation is used to locate obstacles and prey.

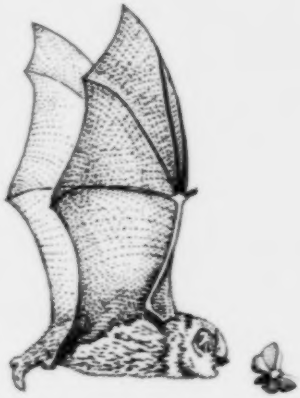
Although bats eat a wide variety of insects, different species tend to prefer different insects. Little brown bats mainly eat small, soft-bodied insects such as midges and mosquitoes; they often hunt over calm bodies of water.

Hoary and big brown bats are larger, stronger fliers and have more powerful jaws. They are able to eat harder-bodied prey, such as large beetles. Both hoary and big brown bats tend to forage above fields, trees, water and other open spaces. Hoary bats typically eat dragonflies, moths, beetles and midges.

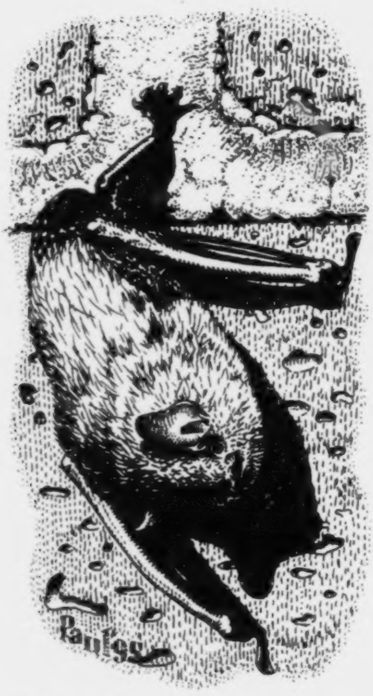
Big brown bats eat beetles, moths, termites, caddisflies, lacewings, carpenter ants and flies. Despite often being called moth specialists, the diet of the silver-haired bat is extremely flexible. This species commonly feeds over calm water, eating moths, midges, leafhoppers, caddisflies, mosquitoes and flies.



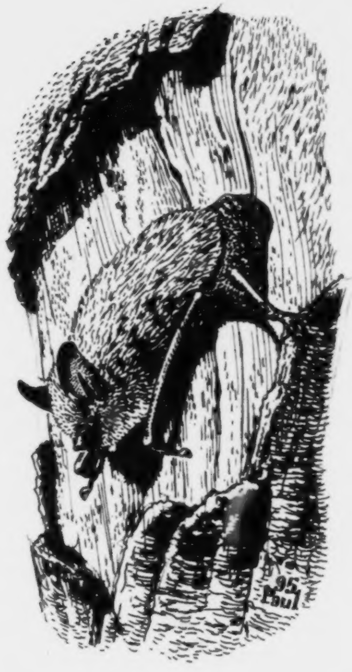
Above: Little brown bat catching moth in wing tip
Below: Little brown bat using tail to catch moth



Hoary bat chasing moth



Little brown bat



Northern long-eared bat

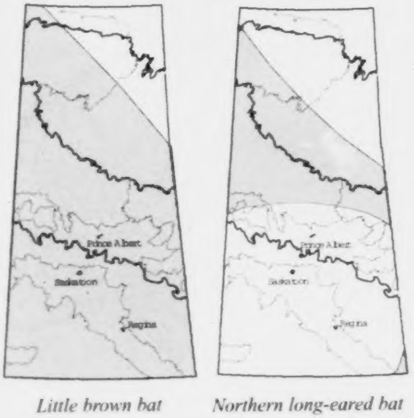
Both the western long-eared and the northern long-eared bat eat moths and other small insects. They are able to catch insects that are on the ground or on plants (a process called gleaning), as well as those in the air (a process called hawking).

Habitat

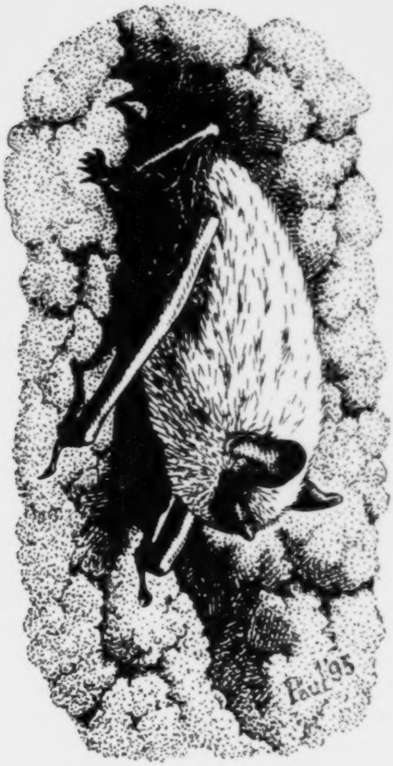
The little brown bat is found in various habitats: dry grasslands, forests and even urban buildings. However, water is never far away. These bats roost in tree cavities, under tree bark, in attics, under shingles, behind shutters and in rock crevices. In the winter, little brown bats hibernate in caves, abandoned mines or in deep crevices in rocks.

They sometimes travel hundreds of kilometres to a suitable hibernation site, often returning year after year.

The northern long-eared bat is found in the woodlands and forests of northern Saskatchewan. In summer, it roosts under loose bark, in rock crevices,



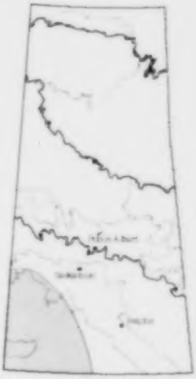
Little brown bat *Northern long-eared bat*



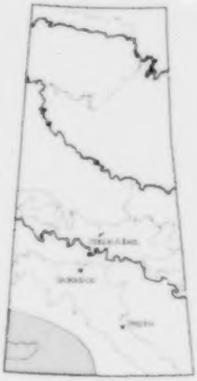
Small-footed bat

behind window shutters or occasionally in buildings. In winter, groups hibernate in caves or mines.

Dry grasslands and pine forests are home to western long-eared bats. In summer, they roost in crevices, hollow trees, buildings, caves and under loose bark. Little is known about where this species hibernates.



Western long-eared bat

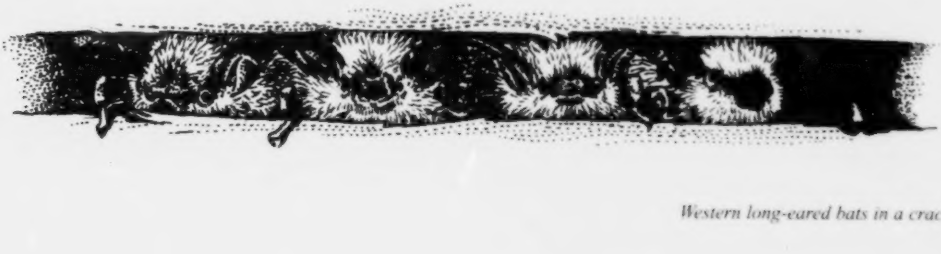


Small-footed bat

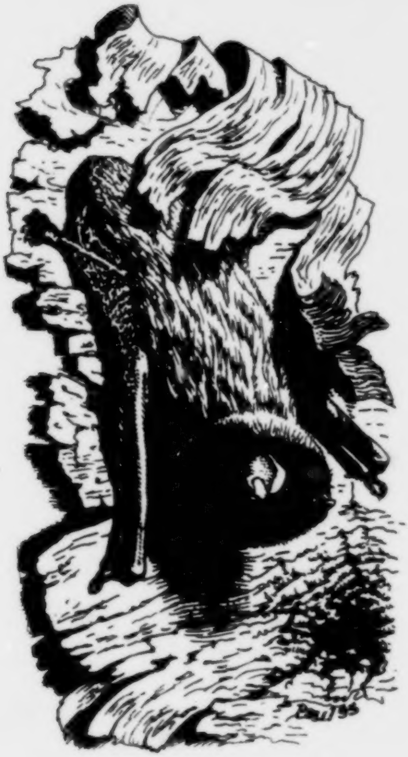
The small-footed bat lives in dry valleys and prairies near clay buttes, steep riverbanks and cliffs. In the summer it roosts in crevices.

These crevices can be in rocks, cliffs or clay riverbanks. This bat has also been discovered roosting under bark, rocks and even in a barn. Researchers do not know where the small-footed bat hibernates in Canada.

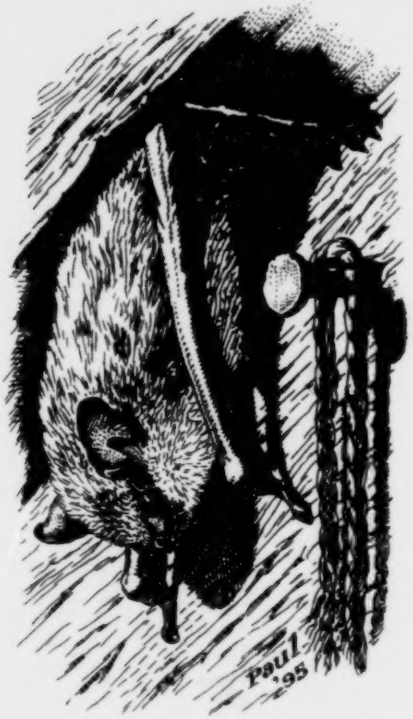
The silver-haired bat is a tree bat, found in forests or in stands of trees near water. It usually roosts in trees, either in cavities or under the bark. Although this species seems to withstand cool temperatures remarkably well (they have been observed flying at -2°C), they migrate south to hibernate. These bats typically leave Saskatchewan between mid-August and early October, returning by



Western long-eared bats in a crack



Silver-haired bat



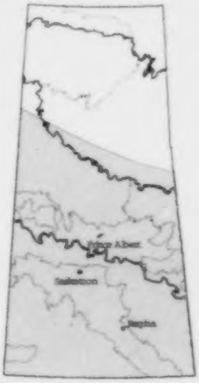
Big brown bat

the following May or June. During migration silver-haired bats move through the prairies, where sometimes they can be observed.

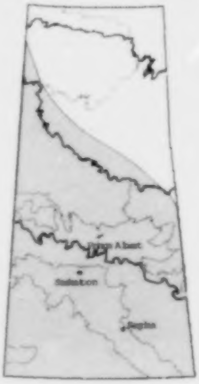
Big brown bats are found in a variety of habitats: in woods, more open areas and in city buildings. A colony lives in the provincial Legislature Building in Regina. Their fondness for buildings helps explain why this is one of the more common bats seen by people. In the Cypress Hills, big brown bats roost in cavities of large trembling aspen trees.

This species hibernates in caves, mines, buildings and even in sewers.

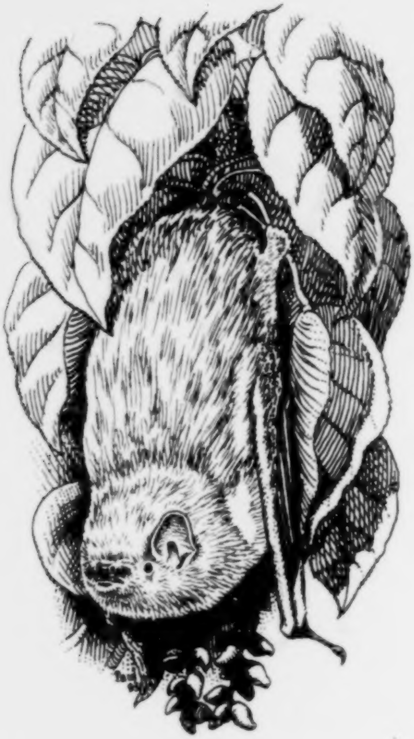
The red bat is a tree bat, found in forested areas and shelterbelts. This solitary bat roosts among tree leaves, camouflaging itself by mimicking a dead leaf.



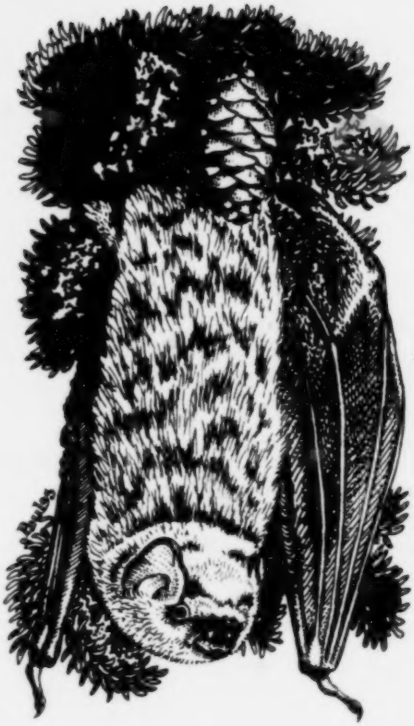
Silver-haired bat



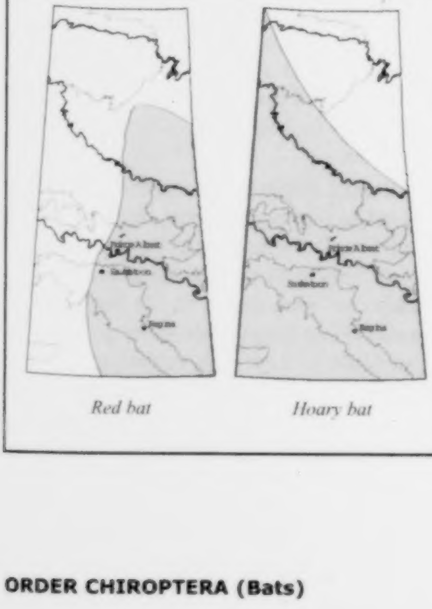
Big brown bat



Red bat



Hoary bat



Red bat *Hoary bat*

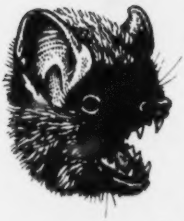
It migrates south between August and October, possibly to hibernate.

Like red bats, hoary bats are often found in the trees. Sometimes called tree bats because they roost near the tips of branches, they are rarely seen except during migration. In May and June, hoary bats migrate north to the prairie and boreal forest of Saskatchewan. Males roost alone, while females roost with their young. Between August and October, hoary bats migrate south to hibernate.

Ecological Relationships

Bats help control insect populations. Insectivorous bats are one of the main predators of nocturnal flying insects. Females who are suckling young may eat

Silver-haired bat showing teeth



up to 1.5 times their own body weight in insects each night.

Many people are afraid of rabid bats. However, in Saskatchewan, the striped skunk is the mammal most often diagnosed with rabies, not bats. In Saskatchewan, other than skunks, the most common animals infected with rabies are foxes, raccoons, dogs, cats, cows and pigs.

Any infected mammal, wild or domestic, can pass on the disease by biting, for the rabies virus is found in saliva.

Rabies is dangerous because it causes paralysis and death unless quickly treated. If you notice any animal acting strangely — including a bat — stay well away from it. Any bat lying on the ground should be treated with suspicion. Do not touch it. Report it immediately.

Although a female bat can produce many offspring over her lifetime, most species give birth to only one young per year. Consequently, if many bats are killed within a short time, the population may not recover until many years later. Their modest birth rate can leave bat populations at risk of extirpation (local extinction).

Quick Facts

- ✓ only mammals able to fly
- ✓ furred body; almost naked wings
- ✓ varied habitats and ranges
- ✓ order Chiroptera (bats); family Vespertilionidae (smooth-faced or plain-faced bats)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones

Status and Range

Little brown bats, big brown bats and hoary bats are found throughout the province, except in the extreme northeast. Silver-haired bats are widely distributed as well, occupying the southern two-thirds of Saskatchewan.

The remaining species are more localized. Western long-eared bats and small-footed bats are restricted to the southwest corner of the province. Their range is separate from that of the red bat, which is more easterly.

The northern long-eared bat inhabits the northern reaches of the Boreal Plain Ecozone and a southern portion of the Boreal Shield Ecozone.

See Table 1 for species-specific information about distribution by ecozone.

Bats have few non-human predators, though raccoons, skunks, weasels, martens, cats, snakes, hawks and owls occasionally take a few.

Humans pose the biggest danger to bat populations. Some people who fear bats will kill them. Because many bat species are colonial (live together in large groups), large numbers can easily be destroyed. Even people who do not mean to cause harm may do so accidentally. If hibernating bats are disturbed, they may awaken. Arousal consumes much of their energy, and increases the possibility that the bat's stored fat will be insufficient to keep it alive for the rest of the winter.

Humans impact bats in other ways. Bats eat millions of insects over their long lives. If these insects have been treated with insecticides, toxic compounds can accumulate in the bat's fatty tissues. These toxins can harm or even cause death in high concentrations. Deforestation is another human activity that can affect bats. Logging removes trees with cavities and crevices which, in turn, removes roosting places.

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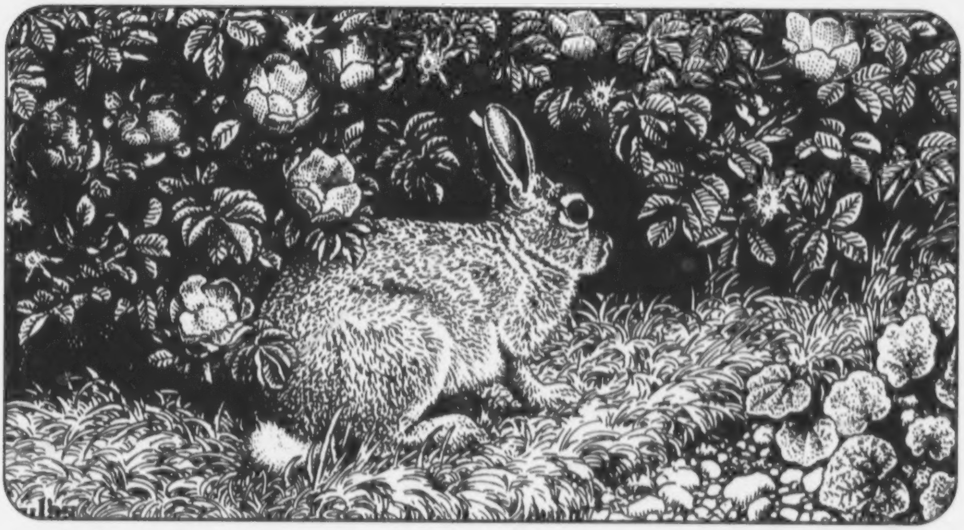
Order Lagomorpha
(Rabbits and Hares)

Nuttall's Cottontail

(Sylvilagus nuttallii)



Description

This little rabbit has a relatively short, greyish-brown body that looks grizzled. The underparts, particularly the tail, are whitish. Its hind legs are densely covered with fur. Nuttall's cottontails are about 38 cm long and weigh approximately 675–1,000 g. They do not change colour in the winter.

Habits

Nuttall's cottontail is one of the few species that, unlike hares, habitually nests in burrows. Sometimes they make nests elsewhere, such as in slight hollows in fields or meadows; there a nest is usually well hidden under a dense thicket. Polygamous breeders (having two or more mates), females produce 3–4 litters between May and August; 1–8 blind, naked, helpless, young (called "leverets") are born after a gestation period of about 30 days. The most common litter size is 4–5. Each newborn leveret weighs about 30 g.

In a nest lined with grass, roots and soft fur, the young are left alone during the day. During their mother's absence a carefully matted covering of dried grasses and fur conceals the young from their enemies. She returns in the evening to suckle them.

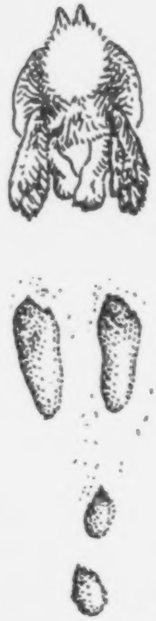
After a couple of weeks the family deserts the nest, and the young are no longer cared for as a litter. They are left to fend for themselves when a month old. They disperse by two months of age.

Within its home range, a Nuttall's cottontail has a network of trails that it uses again and again. These trails are most easily observed after a fresh snowfall.

Food

Nuttall's cottontails eat nearly every

Nuttall's cottontail hopping, with track (not to scale)



kind of green grass, succulent herb and flowering plant found in their range. Prairie grasses and forbs (leafy, non-woody plants that are not grasses) comprise most of their summer diet. The bark, buds and twigs of various shrubs, especially sagebrush, comprise much of their winter diet.

Though clover and alfalfa are among their favourite foods, these plants are not available on the prairie. Patient observers on farms and ranches may be rewarded by the sight of hungry cottontails nibbling away on such delicacies.

Habitat

Brushland, coulees and prairie grasslands with much scrub brush in arid areas are favoured locations. They seldom venture far from cover, be it brush, rugged or rocky terrain or buildings.

Nuttall's cottontails are not found in densely forested areas or on open prairie.

Survival Strategies

Stalked by almost every flesh-eating bird and mammal, Nuttall's cottontail is of necessity a crepuscular (most active at dawn and dusk) and nocturnal (most active at night) animal. Their predators include red foxes, coyotes, badgers, owls, hawks and eagles.

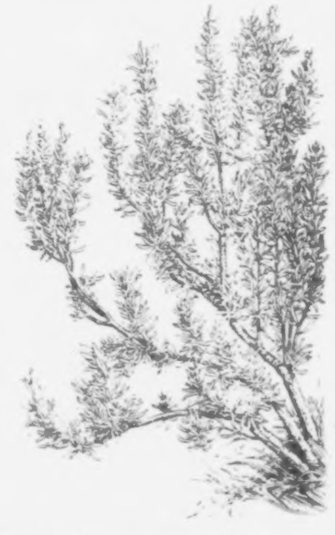
At dusk they emerge from crevices or other hiding places where they rest during the day. Nuttall's cottontails forage for food throughout the night.

Quick Facts

- ✓ small
- ✓ short ears and legs
- ✓ crepuscular and nocturnal
- ✓ order Lagomorpha (rabbits, hares and pikas), family Leporidae (rabbits and hares)
- ✓ Prairie Ecozone

As a precaution, several shelters, each equipped with two exits, are used. Though some shelters might be underground, the rabbits themselves do not dig them. Instead, they occupy deserted burrows of woodchucks, skunks, foxes and badgers.

This species is active throughout the year. However, harsh weather, especially in the form of heavy rain or wind, keeps cottontails under cover and inactive until



*Sagebrush (*Artemisia cana*), a favourite winter food of the Nuttall's cottontail*

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better conditions return. During the winter, these little rabbits often seek shelter under a stone pile or in a hollow tree.

Concealment is the most important defence of the Nuttall's cottontail. Seclusion and restricted activity are adaptations that help keep it hidden from predators. Though able to run as quickly as a fox, after an initial burst of speed it quickly becomes exhausted. After no more than a half-mile chase, these little rabbits must adopt a different strategy. By hiding, doubling back and sometimes even taking to the water, cottontails can often escape their enemies.

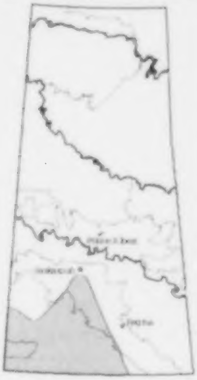
Ecological Relationships

This species has little economic value. Lacking in gloss and durability, its delicate pelt has no market value. Cottontails are often accused of causing much damage to gardens, shrubs and trees.

Status and Range

Nuttall's cottontails are found in the southwestern portion of the province, especially the Cypress Hills.

This species is an inhabitant of the Prairie Ecozone.



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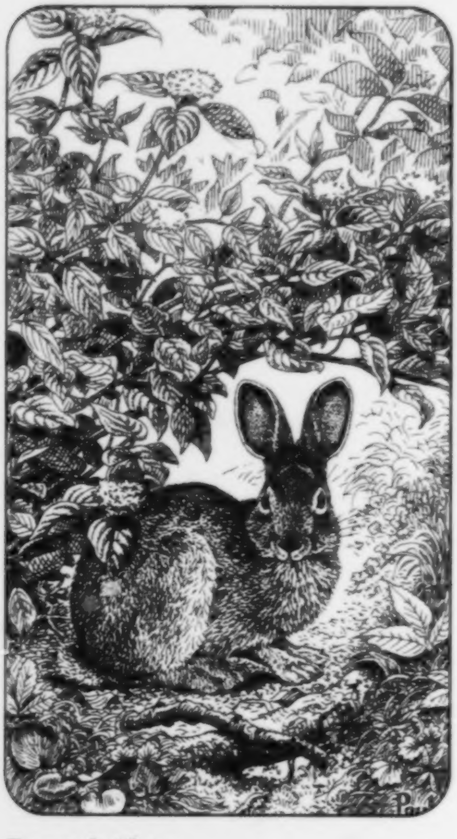
Snowshoe Hare

(Lepus americanus)



Description

The snowshoe hare has large, black-tipped ears and big hind feet. The average weight of a female is 1.56 kg, and of the male, 1.31 kg.

This species goes through two colour changes a year. Each molt (shedding) takes 70–90 days to complete. Snowshoe hares begin to turn white in October. By December, they are all white except for their black-tipped ears and the occasional dark mark left on their fur. They start molting to their summer colors in March, and by May are greyish brown with a white belly. Their powder-puff tail is no longer completely white, but instead changes to black on top and white below.

Years ago snowshoe hares were incorrectly called "snowshoe rabbits." They are not rabbits, for rabbits are born naked and with their eyes closed. Snowshoe hares, like all hares, are born covered with fur and with their eyes open.

Habits

Snowshoe hares that live in Saskatchewan tend to have high reproductive rates. They may have as many as four litters in a year. They begin breeding in late March. After a gestation period of 34–40 days, the first litter is born, usually in May. Snowshoe hares produce 1–9 young per litter, but 2–4 is more common. The female raises the young alone.

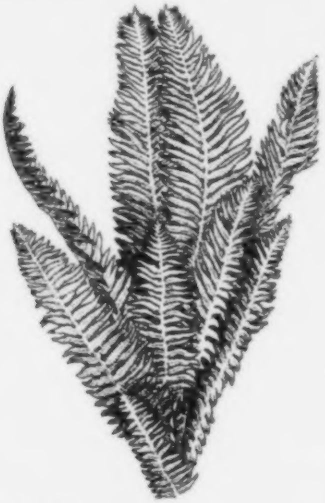
Newborn hares have black-tipped ears with greyish fur. They are born with their eyes open and are able to hop almost immediately. A few days after birth, each young hare finds its own separate hiding place. This reduces the risk of the entire litter being caught all at once by a predator.

The mother nurses her young for about a month. Although they begin feeding on their own in their first week, young hares are not able to live on their own until about a month old. Hares reach adult weight at about five months of age.

Right after giving birth, the female mates again. Thus, litters are born about five weeks apart. The last litter is born in mid to late August.

Food

In summer, snowshoe hares eat green succulent plants such as clover, grasses, sedges, ferns and forbs (non-woody plants other than grasses).



*Ostrich fern (*Matteuccia struthiopteris*), a favourite summer food of the snowshoe hare*

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In winter, hares depend upon woody vegetation including the twigs, bark and buds of spruce, poplar and aspen. Sometimes they also dine on the meat of carcasses they find. To get water, they eat snow.

Habitat

The snowshoe hare is a mammal of the boreal forest. It prefers mixed-wood forests (that is, forests with both deciduous and coniferous trees) where much cover is available.

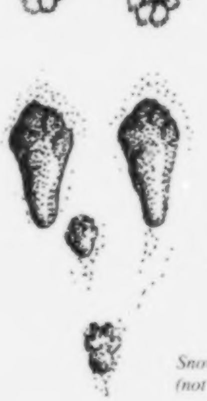
Survival Strategies

This species' survival depends on its ability to stay out of reach of its many predators. The changing colour of its fur (white in winter and brown in summer) serves as camouflage. While lying motionless in thick cover it is hard to see. The hare keeps the trails in its territory clear, for quick escapes, by nipping off plants that grow on or over them. If a predator comes too close, a snowshoe hare leaps up and bolts away down its trails, bounding as fast as 50 km/h. Unless surprised by a predator, a hare often is able to make a successful escape.

Quick Facts

- ✓ white in winter; brown in summer
- ✓ produces many young
- ✓ also called varying hare, bush rabbit
- ✓ order Lagomorpha (rabbits, hares and pikas); family Leporidae (rabbits and hares)
- ✓ most common in Boreal Plain Ecozone and Prairie Ecozone (Aspen Parkland Ecoregion)

The snowshoe hare is named after its broad hind feet which help it to travel over deep snow without sinking. Thick, coarse fur covers its feet. Furthermore, a hare can spread its toes far apart to create an even larger surface area. This species actually benefits from deep snow because, as the snow gets deeper, a hare is able to dine on younger, more nutritious bark and twigs that otherwise would be out of reach.



Snowshoe hare hopping, with track (not to scale)

Ecological Relationships

Snowshoe hare populations appear to go through a cycle that is just under 10 years in length. The population increases until it peaks, followed by a sudden crash. Researchers hypothesize that this cycle occurs because the hares multiply until there is simply not enough food for them all. Then many die of starvation, usually during the winter. The following spring, only a few hares remain alive to reproduce, and the poorly nourished parents produce small litters. There are also many predators hunting the few surviving hares, which decreases the population even further.

The snowshoe hare has many predators. These include lynx, bobcats, coyotes, foxes, weasels, mink, bear, dogs, cats, humans, owls, hawks and ravens. Some predator populations, such as lynx, fluctuate or cycle with the snowshoe population.

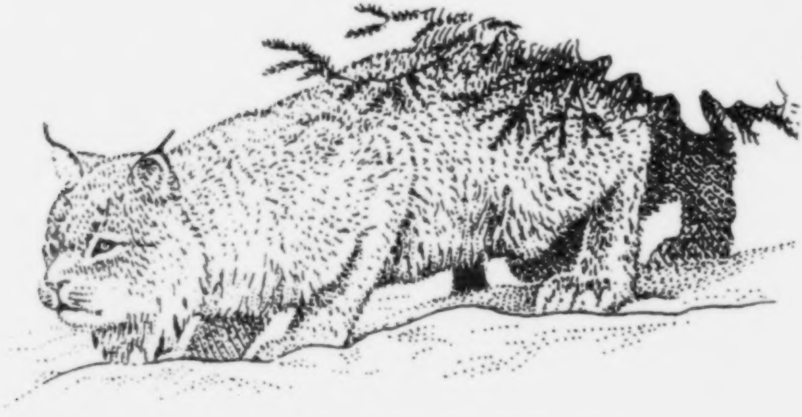
Snowshoe hares can damage gardens and forest plantations. But they can also benefit forestry operations by thinning young forest stands, thereby reducing overcrowding among young trees.

Prince Albert
Regina

Status and Range

Saskatchewan is in the centre of the snowshoe hare's range in Canada. Hares are common in this province, though the population can fluctuate greatly from year to year.

Although snowshoe hares are found virtually throughout the province and in all of Saskatchewan's ecozones, they are most abundant in the Aspen Parkland Ecoregion of the Prairie Ecozone and within the Boreal Plain Ecozone. Snowshoe hares are less common in the Boreal Shield and Taiga Shield ecozones.



The lynx is a major predator of the snowshoe hare

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Forest fires may benefit snowshoe hares, for, after a fire, newly growing deciduous and coniferous trees provide both abundant food and cover. Without fire, the forest matures until most of its trees are softwoods, a situation where cover is still abundant but food may be in short supply.

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Order Rodentia

(Gnawing Mammals)

Least Chipmunk

(Tamias minimus)

Description

Least chipmunks are tiny. They weigh about 50 g and are about 21–22 cm long. They are beige to reddish brown, with light-coloured underparts and a long tail. On their backs, they have five dark-brown stripes separated by four buffy stripes. The least chipmunk looks much like a ground squirrel but has three dark-brown and two buffy stripes on each cheek.

Habits

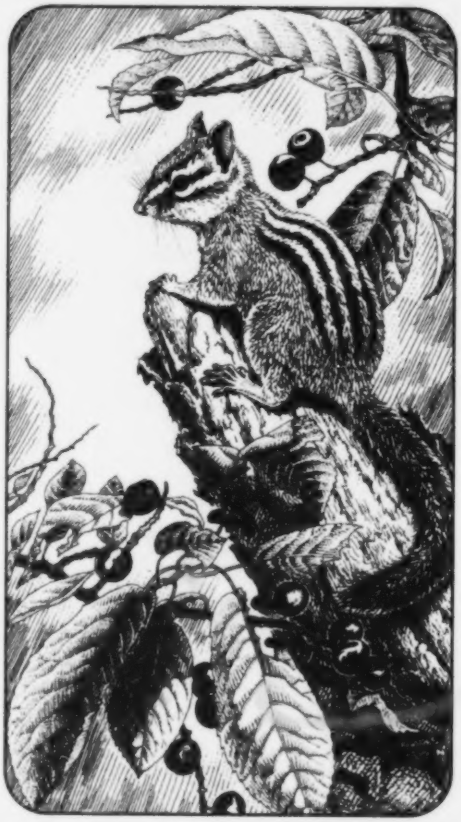
Chipmunks mate in April. Older male chipmunks usually emerge from hibernation around the end of March, and females, in early April. The pups are born later in May, 28–30 days after mating.

An average litter consists of five blind, deaf and pink-skinned pups, each weighing about 2.25 g at birth. They are born in their mother's burrow and are raised by her. A month after birth, the pups' eyes and ears open and they awkwardly practise walking around the den. By the time they are 6 weeks old, they look much like the adults, make trips outside the den, try new foods and play. The pups are ready to care for themselves after 8–10 weeks. They disperse to build their own dens and gather food before the winter begins.

Least chipmunks are fairly solitary animals that live alone in their burrows or nests. Their lifespan can be as much as 6–7 years in the wild, but the average is likely less.

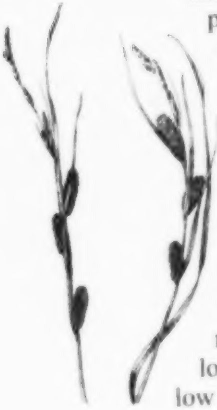
Food

Least chipmunks eat seeds primarily. When eating berries and rosehips, they eat the seeds in the centre and leave the skin and pulp neatly piled on a nearby rock or log. They also eat other plant material such as grasses, sedges, roots, acorns and nuts. When seeds and plants are hard to find, they may eat grasshoppers, beetles and caterpillars.



Habitat

In winter, least chipmunks are ground dwellers that live in burrows. In summer, they may nest in abandoned woodpecker cavities, stumps or even in the branches of trees.



They live in various habitats from open plains to the tundra edge, as long as brush or rocks are present to provide cover. Least chipmunks primarily inhabit the boreal forest in immature and second growth forest, forest edges and clearings. They require cover such as logs, rocks, bushes or low plants.

*Sedge (*Carex atherodes*), often eaten by the least chipmunk*

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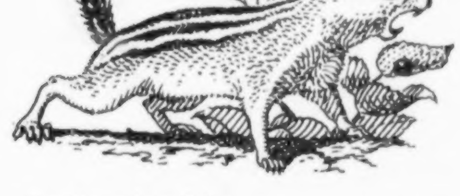
Survival Strategies

Least chipmunks often build their winter burrows under trees. The leaves that fall from these trees act as insulation to help keep them warm through the winter. The burrow consists of a work entrance, a tunnel and a nest chamber. When the tunnel is finished, they dig a new entrance and fill the work tunnel with all the soil they have excavated from the new tunnel. By keeping the extra soil underground rather than above ground, the entrance to the burrow does not attract attention and is less likely to be found by predators.



Least chipmunk vocalizing

Quick Facts

- ✓ small and striped
- ✓ energetic and bold
- ✓ prefer open forest habitat
- ✓ order Rodentia (gnawing mammals); family Sciuridae (squirrels)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga ecozones

During late summer, chipmunks busily gather food and store it under their beds in their dens or bury it underground around their dens. They carry the food in their expandable cheek pouches. These pouches can stretch to be as large as their heads and can hold hundreds or even thousands of seeds. Unlike human cheeks, the chipmunks' cheeks are dry on the inside, so the food they carry does not get wet.

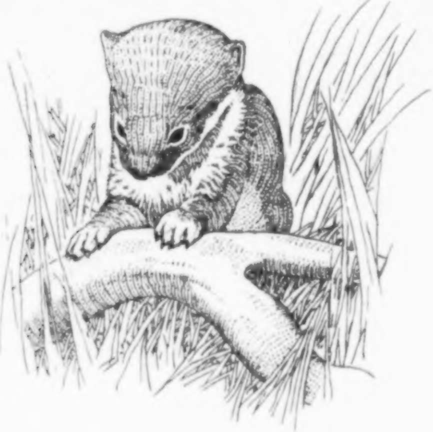
Least chipmunks hibernate from around the start of November to late March. They go into the chamber of their burrow, plug the tunnel with plants and soil and curl up with their tail over their head. During hibernation, the body temperature lowers and breathing and heart rate slow. Researchers do not know when least chipmunks eat the food they have stored. They guess that the chipmunks either eat it before they go to sleep, or that they wake up occasionally during the winter to snack.

Chipmunks have many predators and thus must be fast and alert to stay alive. They usually stay close to cover in case they need quick shelter. They are also good tree climbers and able to jump from branch to branch.

Least chipmunks, like other rodents, harbour fleas, mites and other ectoparasites (parasites that live on the host's body) on their skin and fur. By grooming themselves with their paws and tongues, as well as by taking dust baths, chipmunks remove at least some of these uninvited arthropods and perhaps lessen the irritation they cause.

Ecological Relationships

The chipmunk is a critical part of the food web. It is eaten by almost all carnivores including coyotes, martens, foxes, weasels, bobcats, cats, dogs, snakes, hawks and owls.



Long-tailed weasel, one predator of the least chipmunk

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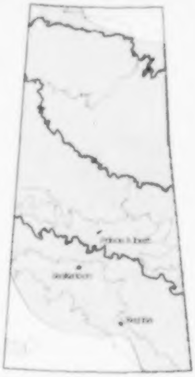
The least chipmunk also plays an important function by dispersing seeds. A chipmunk may bury hundreds or thousands of seeds in the ground. Those that are not retrieved for food often grow into trees or other plants.



Status and Range

Least chipmunks are common in the brushy or wooded areas of Saskatchewan. Their population appears to be healthy.

Least chipmunks are found in all the ecozones within Saskatchewan: Prairie, Boreal Plain, Boreal Shield and Taiga Shield.

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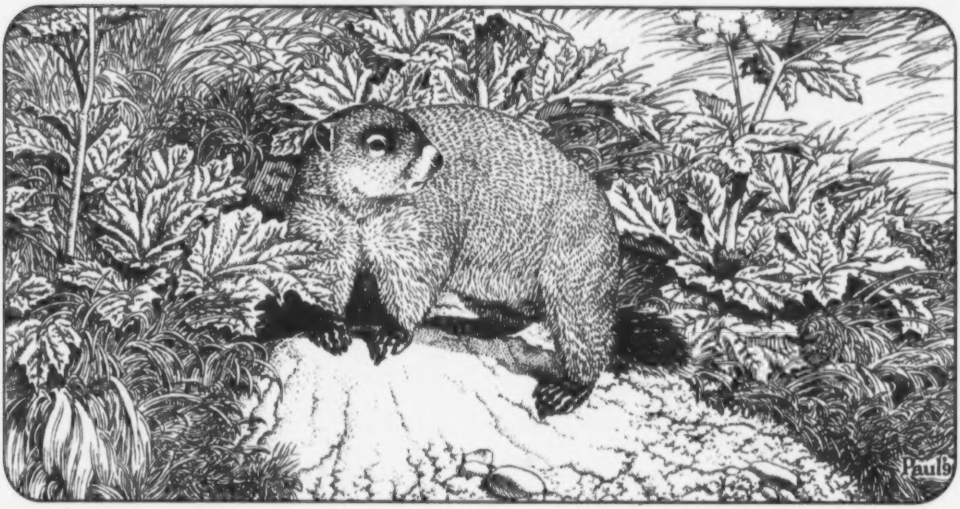
Woodchuck (Groundhog)

(Marmota monax)



Description

The woodchuck is a large, stocky rodent, with a flattened head and medium-length bushy tail. Its colour varies from yellowish to dark reddish-brown. The tips of the guard hairs are lighter, causing the fur to look grizzled. Woodchuck feet are black. The animal is 45–66 cm in length and has an average weight of 3.0 kg.

Because woodchucks are burrowing mammals, their feet have sturdy claws and their legs are thick and strong. Their forefeet, the principal ones used for digging, have four well-developed claws. The hind feet have five claws.

Habits

The woodchuck dens in an extensive burrow with two or more openings. The burrow may be 1–1.5 m deep and 7.5–9 m long.

Woodchucks hibernate from early October to March or April. Unlike many rodents, this species does not store food for the winter. Instead, it gorges on greens all summer, putting on fat. Woodchucks generally weigh about 3.5 kg when they begin to hibernate. However, they weigh considerably less (probably about 1 kg less) when they emerge from their burrows in the spring.

The home range of a woodchuck is about 16 ha (hectares).

Woodchucks have one litter per year. The young are naked and blind when they are born. Their life span is between 4–5 years. In captivity they have lived for as long as 10 years.

Like many members of the squirrel family, woodchucks are diurnal (active during the day).

Food

Woodchucks feed mostly on tender, succulent plants. Among the many plant species which they eat, alfalfa and clover are probably the most important. Occasionally snails, insects and nestling birds are consumed as well.

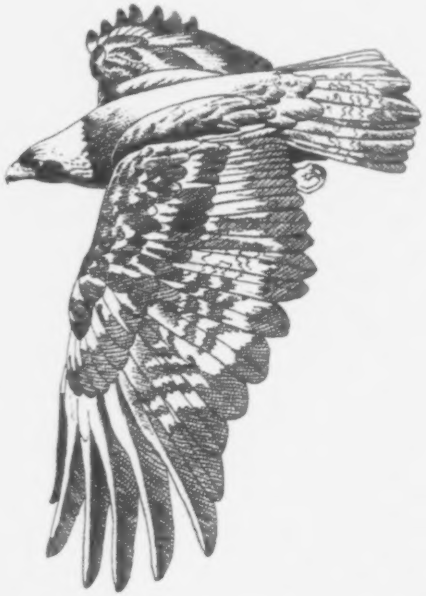
Habitat

This species occurs in much of North America, particularly in the eastern parts of both the United States and Canada. The woodchuck lives in relatively dry, open woods, brush and rocky ravines, as well as grassy meadows and meadow edges.

Survival Strategies

Woodchucks cannot outrun most of their predators, for their top speed does not exceed 16 km/h. They dive into their burrows to escape from enemies. A woodchuck lives in its burrow during all seasons of the year.

Principal woodchuck predators today are eagles, foxes, coyotes and humans.



The golden eagle, a possible predator of the woodchuck

COURTESY THE ROYAL SASKATCHEWAN MUSEUM

Quick Facts

- ✓ large
- ✓ true hibernator
- ✓ diurnal
- ✓ order Rodentia (gnawing mammals); family Sciuridae (squirrels)
- ✓ Plain, Boreal Plain, Boreal Shield and Taiga Shield ecozones

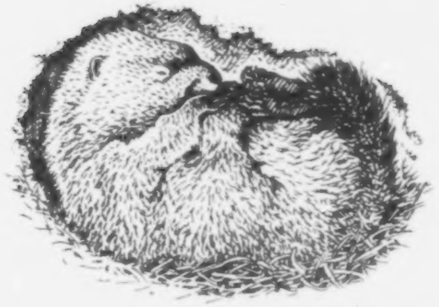
Woodchucks can be fierce and determined fighters in defence of their lives. They have fearsome teeth and would probably be a match for any fox that was unable to completely surprise them.

Ecological Relationships

Most people are surprised to discover that woodchucks are among Canada's largest true hibernators, a group that does not include bears. In winter, bears, unlike true hibernators, are easily roused by any kind of disturbance and their body temperature remains near normal. In contrast, hibernating woodchucks are not easily roused and their body temperature is much lower than normal.

Woodchucks are the subject of a great deal of medical research. Scientists are studying their ability, when hibernating, to lower their body temperature, reduce their heart rate and reduce their oxygen consumption. If it were possible to induce the same sort of responses in humans, even for brief periods, certain forms of heart surgery and other medical treatments would be much facilitated.

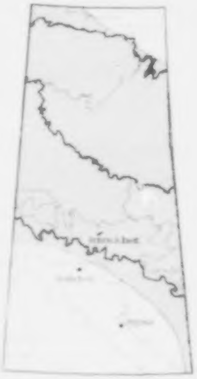
Each February 2, much of North America observes Groundhog Day, a celebration rooted in the traditions of European settlers. On that day, according to folklore, the woodchuck supposedly "awakens" from its long winter hibernation and comes out of its den. If the groundhog sees its shadow, it wi!! go



Woodchuck hibernating

back underground, forecasting another six weeks of winter. If it does not see its shadow, the woodchuck will remain awake and active, indicating the arrival of an early spring. While most people recognize that Groundhog Day has little predictive value weather-wise, the date does have biological significance for some parts of North America. In a study done in south-central Pennsylvania, near Chambersburg, the average date that woodchucks first emerged from their winter burrows was February 3, only one day later than Groundhog Day itself.

The woodchuck can cause considerable damage to agricultural crops and gardens. They especially like alfalfa and clover. Some people consider these personable rodents to be a pest.



Status and Range

In Saskatchewan, woodchucks are most common in the central portion of the province, i.e., in the northern portion of the Prairie Ecozone and in the southern portion of the Boreal Plain Ecozone. Woodchucks are less common in the Boreal Shield and Taiga Shield ecozones.

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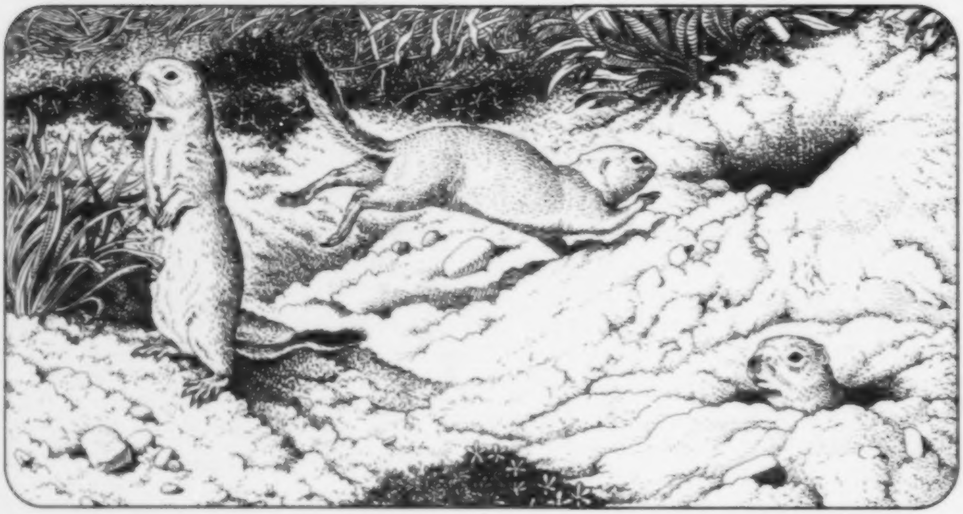
Richardson's Ground Squirrel

(Spermophilus richardsonii)



Description

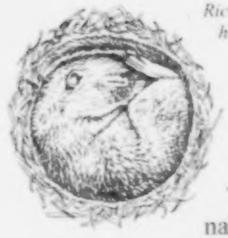
Richardson's ground squirrels, commonly called "gophers," are not gophers at all. Rather, they are plump, yellowish-grey squirrels with short tails. Their eyes are set high in their skulls. This permits them to see airborne predators and still remain relatively safe, for only the tops of their heads needs to be out of the burrow.

Richardson's ground squirrels are not gophers, despite their nickname. Ground squirrels and true gophers are related — both groups are rodents, as they belong to the order Rodentia. True gophers (such as the northern pocket gopher) belong to the family Geomyidae. They have external fur-lined cheek pouches, they do not hibernate and they do not forage above ground. In contrast, Richardson's ground squirrels belong to the family Sciuridae. They have internal cheek pouches that are not lined with fur, they do hibernate and they go above ground during daylight hours to look for food.

Habits

Richardson's ground squirrels live in wide-ranging colonies which may be as dense as 20 squirrels per hectare. Each adult digs its own burrow system comprised of many tunnels. Some tunnels may be as long as 14 m and as deep as 1.8 m. The dirt that is removed while digging tunnels is piled outside the main entrance. It serves as an observation post. Besides the main entrance, there are many other entrances and exits. Tunnels lead to storage, hibernation and nesting chambers. The nest chamber is in the deepest part of the tunnel system.

Males emerge from hibernation in March. Mating occurs when the females emerge in late March to early April. In the nesting chamber, a nest is made from



Richardson's ground squirrel hibernating

dry grass. The female gives birth 23 days after mating to 6–8 young. The newborns are naked, blind, deaf and completely dependent on the mother for food and protection. By 4–5 weeks, the young are ready to go above ground and start eating solid food. By late summer, they are almost fully grown. Young males disperse when they are 9–12 weeks old, but young females usually stay near their mother.

Adult males are above ground for a surprisingly short time, only about 4 months of the year. They begin hibernation as early as June or July and stay in hibernation until the following March. By the end of July, most of the adult females have begun to hibernate. Soon afterwards, in August, the young females begin hibernation, but young males remain active into September and even, occasionally, as late as October or November.

Food

Seeds, leaves, roots and flowers of prairie plants make up the largest part of the diet of the Richardson's ground squirrel. They also eat some insects (such as grasshoppers) and, when available, carrion, including other ground squirrels, but they do not kill to eat. They also eat crop plants, such as wheat and oats, especially when no native prairie vegetation is available, and garden plants.

Male Richardson's ground squirrels cache seeds in their burrows, but females do not cache food. It is believed that males eat this food in the spring, just before they leave the hibernation chamber. This enables males to build up energy before the upcoming mating season begins.

Quick Facts

- ✓ often called "gopher," but not a true gopher
- ✓ abundant
- ✓ live in family groups in loose colonies
- ✓ order Rodentia (gnawing mammals); family Sciuridae (squirrels)
- ✓ Prairie and Boreal Plain ecozones

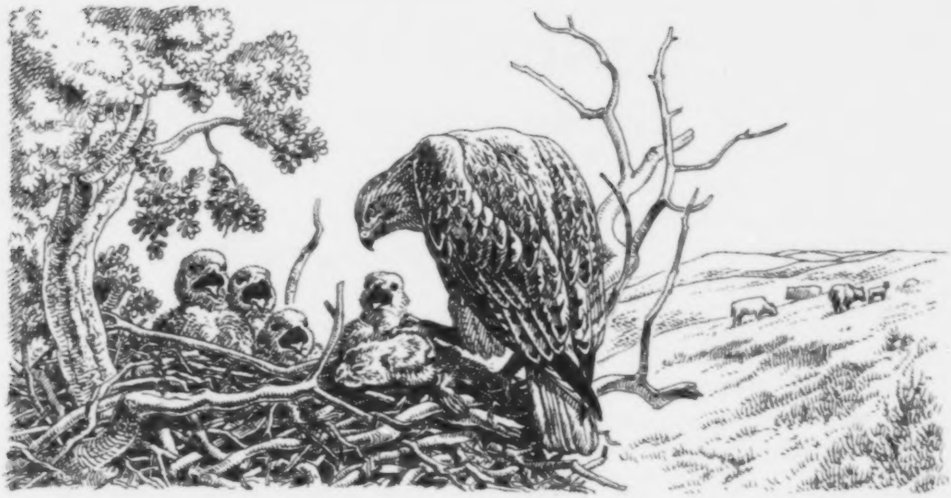
Habitat

Richardson's ground squirrels prefer open prairie where the vegetation is short and the ground is dry and easy to excavate.

Survival Strategies

The burrow provides a year-round shelter from the elements as well as a ready refuge from most predators. In order to survive harsh prairie winters, Richardson's ground squirrels hibernate in a deep chamber. They insulate it with a lining of dried plants. When a ground squirrel hibernates, its body temperature drops to match the soil temperature and its breathing, heart rate and metabolism slow. Their energy needs decrease during hibernation, but they do warm up periodically throughout hibernation. They stay warm for only about a day before again cooling down. During hibernation, which lasts as long as eight months for adults, the animals depend solely on their fat reserves for an energy source.

Hibernating ground squirrels are relatively safe from predators. To discourage them, Richardson's ground squirrels plug and seal the entrance of the hibernation chamber with soil. This keeps them safe from predators that are not diggers themselves, such as weasels and snakes.



The ferruginous hawk depends heavily on the Richardson's ground squirrel to feed its young

Coyotes and foxes characteristically do not dig the half metre or more necessary to unearth a hibernating squirrel. Only badgers are able to dig out hibernating squirrels. Once the ground freezes, however, usually even badgers stop digging. Badgers hunt hibernating ground squirrels primarily from September to December.

These little rodents live in clusters of female kin, such as mothers, daughters, grand-daughters, sisters, aunts and nieces. Each female has her own burrow system and rears her own litter by herself. Males are very aggressive in the mating season and are often wounded. Males suffer very high mortality and only a few of them live more than two years . Females live longer, often for three years and occasionally for up to five years.

This ground squirrel has very good eyesight. Standing erect, frequently on the mound at the entrance to its tunnel, it is able to scan a large area for potential predators. The yellowish-grey colour blends in with the prairie grasses, helping to camouflage the squirrel from overhead predators. Richardson's ground squirrels benefit from living in colonies because there are more individuals to watch for predators. If danger threatens, a ground squirrel gives an alarm call by standing erect on its back legs, squeaking and flicking its tail. They have two different alarm calls, one for aerial predators such as hawks and another for terrestrial predators such as weasels.

Ecological Relationships

Tunnels built by Richardson's ground squirrels are used for shelter by many species, including the burrowing owl.

These rodents are an important prey species for many other organisms. For example, the population and productivity of the ferruginous hawk depends heavily on the abundance of Richardson's ground squirrels. Swainson's hawks, prairie falcons, foxes, coyotes, weasels, badgers and rattlesnakes also commonly prey on this species.

Many people consider the Richardson's ground squirrel to be a pest because their burrows interfere with agriculture and they eat and trample crops. In the past, unsuccessful wide-scale poisoning and bounty programs were tried in order to decrease their numbers. Now the Richardson's ground squirrel is recognised by ecologists as a keystone species, providing food and burrows for many other species. Many people enjoy watching ground squirrels, and picnickers often give them the occasional tidbit in exchange for a closer look.

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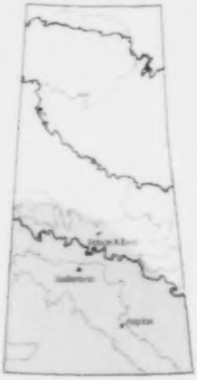


Status and Range

Richardson's ground squirrels are found across the entire Prairie Ecozone and in the southern Boreal Plain Ecozone.

The provincial population has probably declined since the arrival of European settlers. But despite cultivation of grassland habitat and efforts to control their populations, this species remains a common resident of Saskatchewan.

Fox Squirrel

(Sciurus niger)

Description

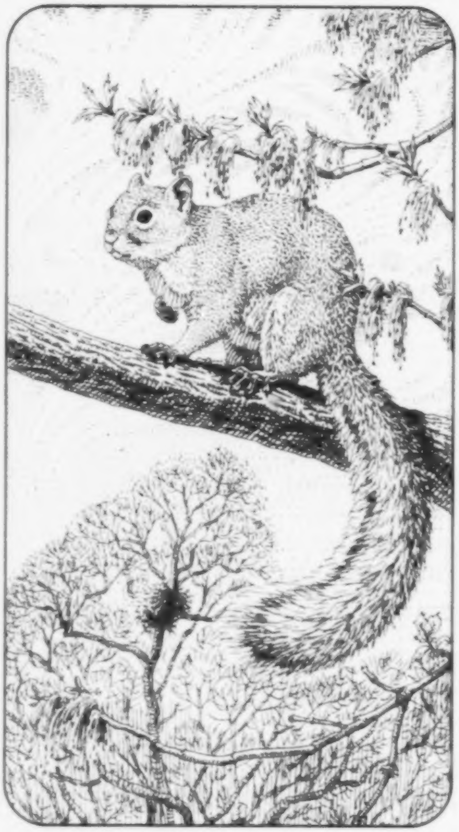
The fox squirrel is the largest of the tree squirrels. It averages about 800 g, but can weigh as much as 1.23 kg.

This species has three distinct colour phases: red, black and beige-grey. In Canada, however, its most common colour is beige-grey with a reddish-yellow underside. The long, bushy tail is reddish on the underside and banded black and buff on top. The fox squirrel looks much like the grey squirrel, but is larger and is reddish on the underside of its tail. The underside of the grey squirrel's tail is greyish-brown.

Habits

Fox squirrels in Canada often build different kinds of nests in the summer and the winter. Their winter home is a tree cavity lined with shredded vegetation. Squirrels use a cavity made by a woodpecker or flicker, or they dig their own cavity in a dead part of the tree. Their summer home is called a dray and often looks like a ball of leaves and twigs in the fork of a tree. Despite its somewhat flimsy appearance, the dray is rainproof and warm inside.

Fox squirrels are generally solitary animals, except during mating season. Although they may mate twice a year, it is believed that fox squirrels in Canada only have one litter a year. As many as six young are born in February to March or in July. The mother squirrel is very protective of her young. She will chase away any intruders. She will even carry her litter, one by one in her mouth, to a new nest if they are in danger.



At birth, the young are hairless, deaf, blind and helpless. By two weeks, they are furred. By six weeks, their eyes are open. A week or two later, the young venture outside the nest. Young squirrels are weaned and capable of fending for themselves by three months of age. In September and October the young may disperse or they may spend their first winter with their mother in her den.

Food

Fox squirrels are omnivores. Their diet consists of nuts, seeds, berries, flowers and buds. They also sometimes eat grubs, insects, caterpillars, eggs and young birds. Like other squirrels, fox squirrels will chew on shed antlers, bones and tree bark. They get water by drinking from puddles and streams, from eating fruit and by licking dew.

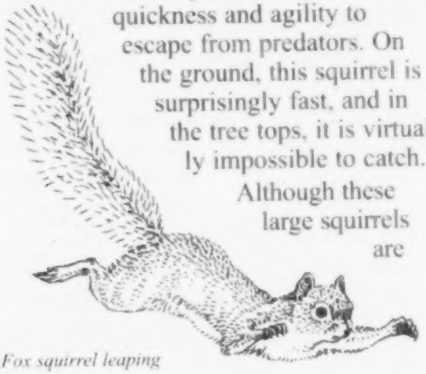
In the late summer, fox squirrels spend much of their time gathering food. They bury it in different places, at a depth of about 4 cm. In winter, when food is scarce, fox squirrels rely on their keen nose and good memory to find the food they had buried earlier. Seeds, rose hips, the fruit of the wolf willow and bird feeder visits supplement their winter diet.

Habitat

Fox squirrels are found at the edge of hardwood forests adjacent to open country. As well, they have successfully taken up residence in large urban centres, in mature aspen bluffs and in farmyards where there are many trees. In Saskatchewan they seem to prefer areas near southern river systems with stands of hardwood trees. Such hardwoods include maple, elm, balsam poplar and green ash.

Survival Strategies

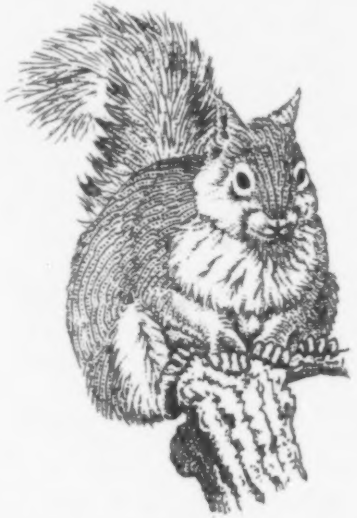
Fox squirrels rely on their quickness and agility to escape from predators. On the ground, this squirrel is surprisingly fast, and in the tree tops, it is virtually impossible to catch. Although these large squirrels are active during the day, they are surprisingly inconspicuous. They keep out of sight by hiding behind tree trunks and branches. As an intruder moves around to see them, the fox squirrel moves around to stay out of sight.



Fox squirrel leaping

Quick Facts

- ✓ expanding population and range
- ✓ recent immigrant
- ✓ largest tree squirrel in Saskatchewan
- ✓ order Rodentia (gnawing mammals); family Sciuridae (squirrels)
- ✓ Prairie Ecozone



Fox squirrel perched on a branch

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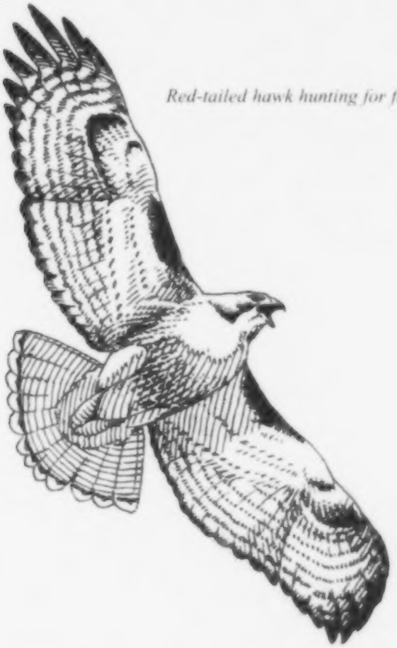
The fox squirrel's tail has many uses. On hot, sunny days, it may be used as a sunshade as the squirrel reclines on a branch. In rainy weather, it can become an umbrella. As well, the tail helps the squirrel to balance, and can act as a parachute of sorts if the squirrel should fall out of a tree.

Ecological Relationships

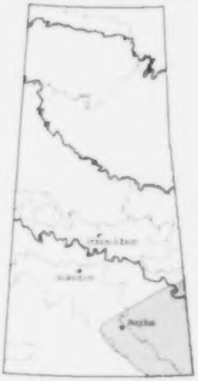
In the air, predators include red-tailed hawks, eagles and owls. On the ground, fox squirrels fall prey to dogs, cats, coyotes, foxes and weasels.



Red-tailed hawk hunting for food

This rodent is dependent on trees that are large enough to provide suitable nest sites. Thus, its immigration into this province may have been made possible by the fact that, with protection from fire, the trees in southern Saskatchewan are becoming older and larger. Control of prairie fires allows more trees to survive and to grow larger. This, in turn, causes more forested areas to develop. Grain fields and waste grain may provide additional food supplies.

Because the fox squirrel is relatively new to Saskatchewan, it is unknown to many people. In the United States, fox squirrels are a popular small game species hunted for food and fur. In Saskatchewan, fox squirrels are neither hunted nor trapped.



Status and Range

The fox squirrel entered Saskatchewan in the 1970s from the United States and, possibly, Manitoba. It is believed that this species may have travelled along the Souris River Valley. By 1979, the fox squirrel had been documented as far north and west as Regina. It continued to move westward, and by 1996 a population had become established in the Thunder Creek region near Moose Jaw.

Fox squirrels now inhabit areas along the Souris River, Qu'Appelle River and Thunder Creek. They are also established in Greenwater Provincial Park, about 80 km southwest of Hudson Bay. There have been sightings at Windthorst, Oxbow, Redvers, Avonlea and other areas, indicating that the range of the fox squirrel is expanding westward and northward.

At present most fox squirrels are found in the Prairie Ecozone, though the few in Greenwater Lake Provincial Park inhabit the extreme southeast portion of the Boreal Plain Ecozone.

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Red Squirrel

(Tamiasciurus hudsonicus)

Description

The red squirrel is a small, tree-dwelling rodent. It has a white ring around the eye and a yellowish-red bushy tail. In the summer, this squirrel has olive-brown upperparts and white underparts. In winter, its upperparts change to reddish brown, its underparts change to silvery grey and it has an orangish-red stripe that runs from the head to the tail.

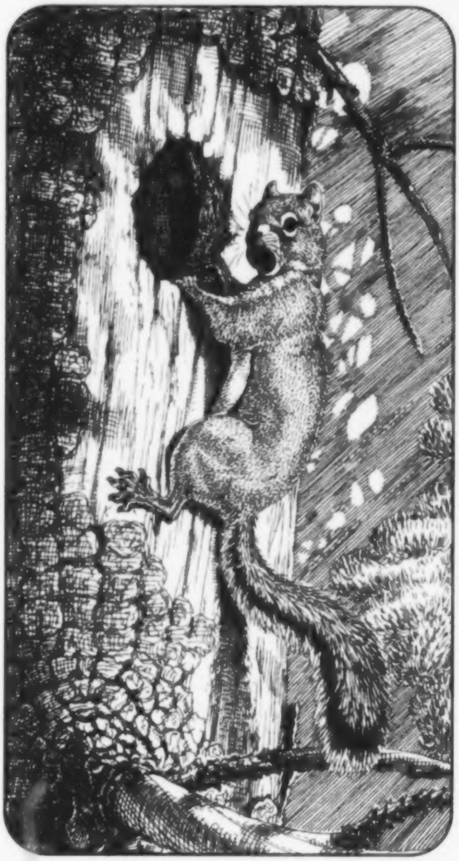
The average length of a red squirrel, including a 10–14 cm tail, is 31 cm. The average weight is 230 g.

Habits

The red squirrel nests in tree trunk cavities, logs, tree stumps and even tunnels in the snow. In the summer, a squirrel often builds a nest from twigs and leaves. This leafy nest, sometimes called a dray, is attached to the branches of a tree.

Red squirrels mate in April. The 1–8 young are born after a gestation period of about 40 days.

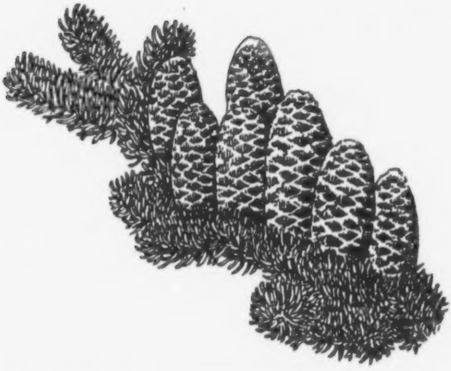
At birth, young red squirrels are blind, naked and helpless. Their eyes open before they are five weeks of age. Soon after, they begin to play with their littermates. By eight weeks, they are weaned. At about 10 weeks of age, they venture outside the nest. The young are cared for by their mother throughout the summer. In the fall, they may leave or they may spend their first winter with their mother in her den, dispersing in the spring. Red squirrels live approximately three years, although a few may reach eight years of age.



Food

The bulk of the red squirrel's diet consists of seeds and nuts. These staples include the seeds of fir, black spruce and white spruce, scotch pine, jack pine and lodgepole pine trees. In spring, red squirrels also eat leaf and flower buds, bark, fungi and plants.

In summer, red squirrels dine on berries, flowers, mushrooms, insects, young birds and eggs.



Balsam fir cones, a seed supply for a red squirrel meal

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Quick Facts

- ✓ bold, curious, active and noisy
- ✓ white eye-ring and bushy tail
- ✓ coniferous forest
- ✓ order Rodentia (gnawing mammals); family Sciuridae (squirrels)
- ✓ found mostly in Boreal Plain, Boreal Shield and Taiga Shield ecozones

By autumn, red squirrels have gathered hundreds of cones. They cache (store) them underground, at the base of logs or stumps, or in large piles on the ground. These cone piles are called middens. Caches supply red squirrels with food throughout the winter.

The red squirrel is the most carnivorous of squirrels and will eat small mammals such as deer mice and meadow voles, as well as nestling birds.

Habitat

Red squirrels prefer to live in mature forests of spruce, pine and fir trees. They may also be found in mixed-wood (containing both coniferous and deciduous trees) stands.

Survival Strategies

Red squirrels are quick and agile climbers. They are able to run on the underside of branches and leap from tree to tree. If they fall, they try to catch a branch or stretch out their legs to slow their fall. They have been known to drop as far as 25 m without hurting themselves. When on the ground, red squirrels stay close to trees so they can escape quickly if a predator comes along.

Caching food ensures a constant food supply. Hard foods such as seeds are buried, while soft foods such as mushrooms are lodged in the branches of trees.

Red squirrels are noisy, bold and aggressive. They are able to make a number of loud, scolding sounds such as "churrrr" and "screech" to scare intruders away from their young, their food supply or their territory. Red squirrels threaten intruders by stamping their feet, flicking their tail, chasing and even fighting. In the summer, red squirrels are most active early in the morning and late in the afternoon when it is not too hot.

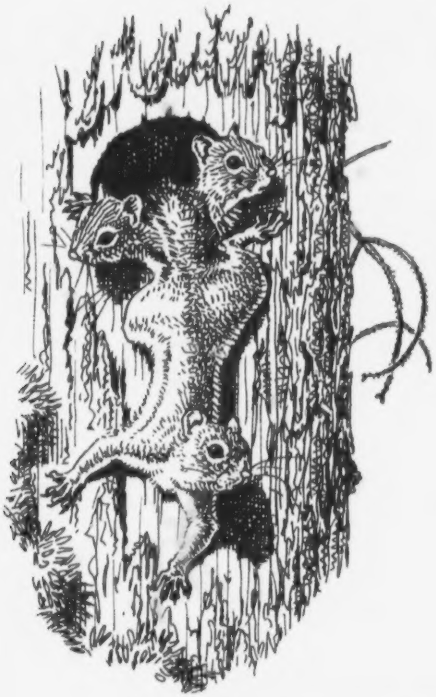
In the late summer and fall, red squirrels eat as much as possible to put on fat to insulate them from the winter's cold.

Although this species does not hibernate in winter, individuals become less active and spend more time in the warm nests they have built for shelter. If a blizzard strikes, a red squirrel will simply stay sheltered in its nest until the coldest weather passes.

Ecological Relationships

The red squirrel is an important link in the forest food web. Its common predators are hawks, owls, martens, fishers, lynx, weasels, coyotes, mink, bobcats, wolves and domestic cats.

These squirrels play a large part in the regeneration of coniferous tree species. Each red squirrel hoards and

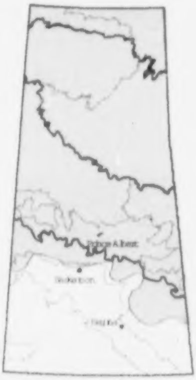


Red squirrel young emerging from nest

buries hundred of cones and seeds. Those left uneaten often sprout and grow into trees. As well, red squirrels eat grubs and boring insects that can harm or destroy trees.

Red squirrels sometimes steal grain from granaries or kill young chicks or ducklings for food.

Trappers value the fur. Anywhere from 27,000 to almost 200,000 red squirrels are trapped in Saskatchewan each year.



Status and Range

The red squirrel is abundant in the Boreal Plain, Boreal Shield and Taiga Shield ecozones. A few red squirrels live in the Prairie Ecozone within the Aspen Parkland Ecoregion. Red squirrels able to live in urban areas that have coniferous trees.

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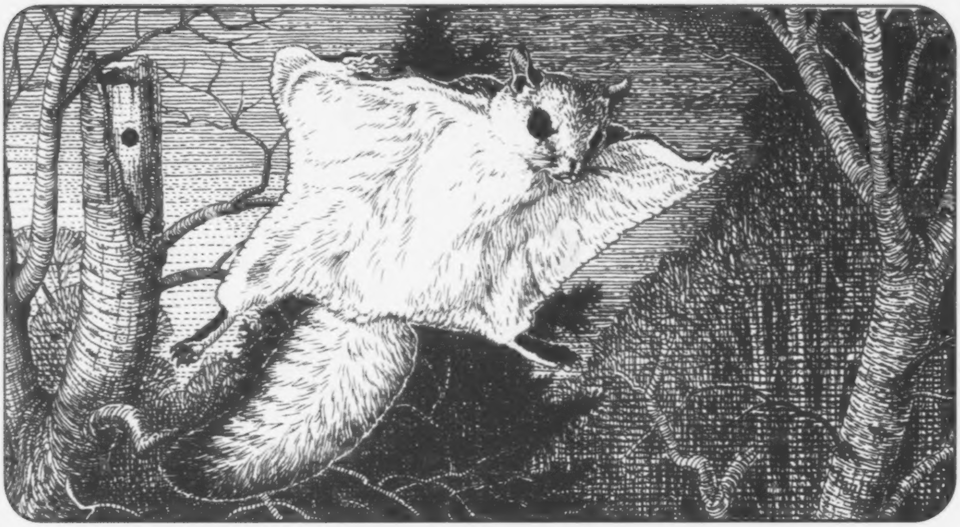
Northern Flying Squirrel

(Glaucomys sabrinus)



Description

Despite its name, the flying squirrel does not actually fly but rather glides from higher to lower branches. Leaping from a tree, the flying squirrel stretches out its legs so that the cape-like folds of skin at its sides become taut. In this manner, the flying squirrel can glide more than 40 m at a time.

Flying squirrels have large black eyes, small ears and a flat tail about 10–15 cm in length. They have grey to brownish fur and buff underparts. Their total length varies from 25–35 cm. Their weight varies from 75–140 g.

They have several vocalizations. One is a "chuck chuck" sound. Another sounds like a chirping bird. When distressed, they make a high, squeaky sound.

Habits

These tree dwellers build two types of homes. One type of den is built in old woodpecker holes or in naturally occurring tree cavities. The second type is called a dray and often looks like a ball of moss, twigs, bark and lichen sitting on a branch near the trunk of a tree. Drays are usually used as summer homes, while the more interior dens are used in the winter.

Northern flying squirrels mate in March or early April. The male is not involved in raising the young, but he often finds a den nearby. He and the female feed and travel together at night. In May, 2–6 young are born. They are blind, hairless and weigh less than 6 g each. Their eyes open at five weeks, and by nine weeks, the young are weaned. When about three months old, they try gliding for the first time. By four months, they are good gliders and able to care for themselves. Some strike out on their own, while others spend their first winter in their mother's den.

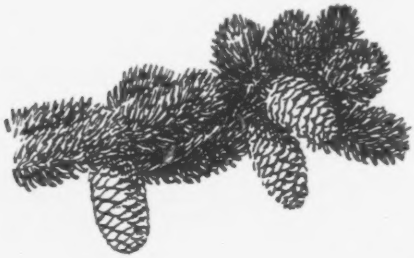
The average life span in the wild is estimated to be 3–4 years.

Food

The diet consists of seeds, nuts, berries, tree buds, bark, insects, lichens, fungi, nestlings and bird eggs. They will forage on the ground at night. Northern flying squirrels are fond of meat and will nibble on a carcass if the opportunity arises. They cache food in the nest chamber and in the crotches of tree branches. Caching food is a way of storing food for the winter.

Habitat

Northern flying squirrels are found in heavily wooded coniferous forests and mixed forests across North America. In Saskatchewan, they seem to prefer living in and around spruce trees.



White spruce, a favourite dwelling place of the flying squirrel

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Survival Strategies

Northern flying squirrels do not hibernate but will stay in their dens during very cold, windy or wet weather. In the winter, up to 12 flying squirrels may share a den and provide one another with much body heat.

They have large eyes and good night vision.

Flying squirrels can escape many land predators by climbing trees. By gliding from tree to tree, they can often elude predators that can climb trees (such as marten) and airborne predators (such as owls).

Quick Facts

- ✓ able to glide through the air
- ✓ membrane of skin from wrist to ankle
- ✓ nocturnal; rarely seen
- ✓ order Rodentia (gnawing mammals); family Sciuridae (squirrels)
- ✓ Boreal Plain, Boreal Shield, Taiga Shield and Prairie ecozones

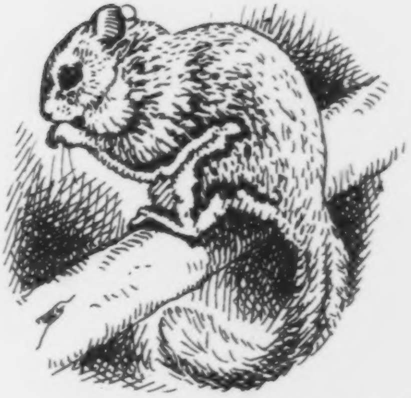
Ecological Relationships

As with any species, populations of flying squirrels rise and fall with the availability of food, the severity of weather and the abundance of predators. As well, the availability of proper habitat is important to any species. The northern flying squirrel is most commonly found where there are stands of coniferous trees.

Northern flying squirrels and red squirrels generally share the same habitat, food and predators. The northern flying squirrel often builds its drays by renovating old red squirrel, magpie or blue jay nests. Predators of the flying squirrel include owls, goshawks, fox, bobcat, lynx, cats, ermine, fisher and marten.

Unlike other squirrels, northern flying squirrels are nocturnal. Therefore, they are seldom seen by people.

The fur of this species is too soft to be of any economic value, for it will quickly wear off the pelt. Some trappers



Northern flying squirrel sitting on branch

consider this squirrel to be a pest because it eats bait and springs traps. Occasionally, the flying squirrel is unintentionally caught in a trap.

Northern flying squirrels sometimes become nuisances by entering houses and cabins through chimneys or by taking up residence in attics. They may also eat the seeds at birdfeeders. But some people enjoy their nightly visits and place food close enough to a light source to be able to watch these sociable, friendly little squirrels.

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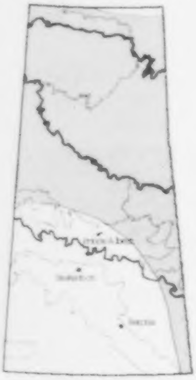


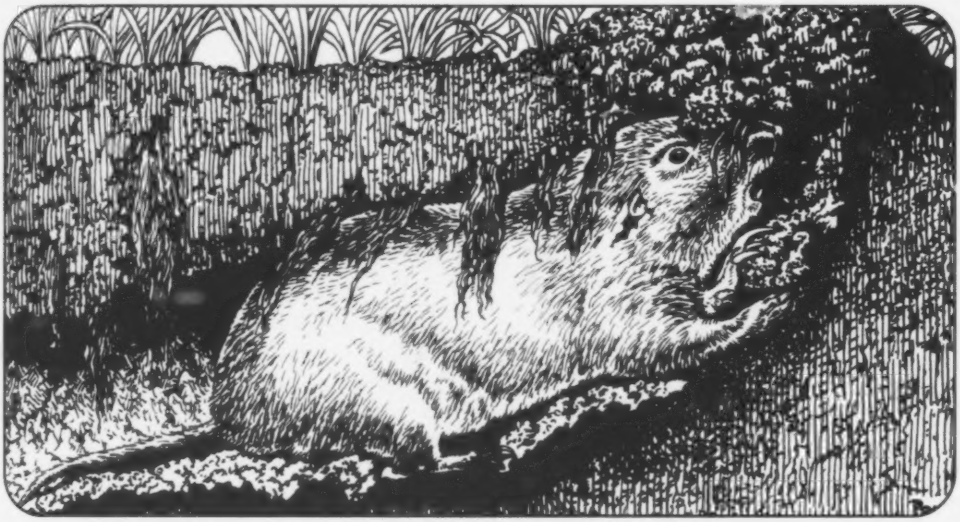
Status and Range

Northern flying squirrels are less common than red squirrels, but both species are often found in mixedwood and coniferous forests. Though likely most abundant in the Boreal Plain and Boreal Shield ecozones, northern flying squirrels are also found elsewhere in Saskatchewan. They inhabit much of the Taiga Shield Ecozone, as well as a thin strip of Prairie Ecozone along the Manitoba border.

They seem to prefer living in and around spruce trees in Saskatchewan. They are found throughout the province, except in the southwest.

Northern Pocket Gopher

(Thomomys talpoides)



Description

The pocket gopher is a stocky little mammal with a short, almost furless tail. It has short, strong legs with long, curved claws on each front foot. Its ears and eyes are small. Its incisors (front teeth) are large and orange. Pocket gophers have cheek pouches, but unlike squirrels and chipmunks whose cheek pouches open to the inside their mouths, pocket gopher pouches are fur-lined and open to the outside of each cheek. Pocket gophers have what are called external cheek pouches; squirrels and chipmunks have internal ones.

The short fur varies from a brown to yellowish-brown colour. Sometimes the fur is gray, especially in juvenile gophers. It is soft and thick. Gophers often have a white patch under their chins and, sometimes, on the throat or chest as well.

Adult males tend to be heavier than females: on average 150 g and 127 g, respectively. Adult males typically are slightly longer than females: on average 23.4 cm and 22.0 cm, respectively.

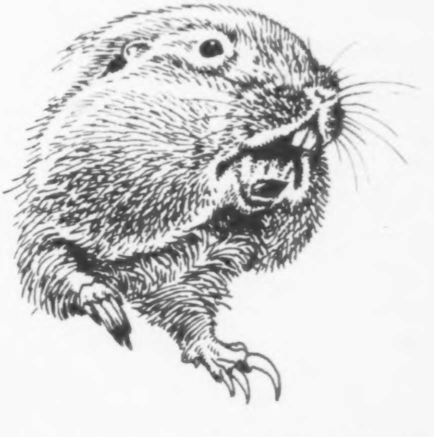
Habits

These toothy rodents are solitary. They are so territorial that a fight will break out if two of them meet. A pocket gopher lives alone in its own burrow system, except during the breeding season.

During the mating season in April and early May, male pocket gophers search for mates. They dig horizontally in a straight line until they run into the burrow of a receptive female. Some researchers believe that after mating, pocket gophers return to their solitary ways: each goes back to its own tunnel and seals off any interconnecting tunnels. However, other researchers believe that pocket gophers become less territorial during the breeding season. These scientists argue that a number of gophers may live in the same burrow until they re-establish their own territories in the fall.

After a gestation period of 3–4 weeks, the female gives birth. An average litter consists of four young, but may range from 1–8. Newborns are naked and helpless. Their eyes and ears open at 26 days. They can usually start using their cheek pouches at 39 days. Young gophers likely are weaned by 5–6 weeks and are soon ready to strike out on their own. They leave their mother to establish their own burrows when about two months of age, even though they are only one-third of what will be their adult weight. Young gophers do not reach adult size until they are about five months old. Northern pocket gophers are believed to have an average lifespan of about three years.

Casts, a telltale sign of pocket gopher activity, may be seen in spring soon after snowmelt. In addition to their subterranean activities, pocket gophers dig tunnels in the snow, above the surface of the ground. They pack soil—generated from excavating underground tunnels—along the inside walls of the snow tunnels. When the snow melts away in the spring, what remains are hollow earthen tubes, called casts. The casts soon disappear, helped along by the action of rain and wind.



Northern pocket gopher showing external pockets packed full

Quick Facts

- ✓ live underground
- ✓ external cheek pouches
- ✓ prefer loose, moist soil conditions
- ✓ order Rodentia (gnawing mammals); family Geomyidae (pocket gophers)
- ✓ Prairie and southern Boreal Plain ecozones

Food

Northern pocket gophers eat many different plants but seem to prefer forbs (non-woody plants that are not grasses) such as clover, dandelion and goldenrod. In the summer, they eat many green leaves and stems. In the winter, when summer foods are unavailable, they eat roots.

Habitat

Northern pocket gophers live in a variety of soil conditions. Many researchers report that gophers like soil that is loose, soft and moist. Others have found high gopher populations in sandy soils in Alberta and in black soils in Saskatchewan.

Gophers avoid soils that are too rocky for digging. They also avoid wet, clay-like soils because, when underground, they cannot breathe through the densely compacted soil particles. Northern pocket gophers are frequently found in native grasslands, cultivated fields, roadside ditches, gardens and along riverbanks. They spend most of their lives underground but will surface at night.

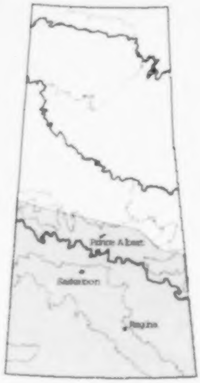
Survival Strategies

Pocket gophers are well suited to a life underground. They are excellent diggers, and use their front legs and incisors to loosen roots and rocks. Pocket gophers bulldoze the soil they have loosened by stretching out their front legs and pushing themselves forward with their back legs. The soil is either pushed to the surface or used to plug old tunnels. To keep dirt out of their mouth, eyes and ears, pocket gophers have special adaptations. Unlike many rodents, their lips can be closed behind their incisors and their eyelids and ear valves can be shut tightly so that no dirt gets into their body openings.

The main entrance to the burrow system is a narrow tunnel that runs straight down. It is just wide enough for its owner to get through. The gopher sometimes plugs the entrance with soil to prevent flooding and to discourage predators. The deep design of the burrow also deters predators because of the effort needed to dig out a gopher.

Pocket gophers dig feeding tunnels off their main burrow. Under the ground, they can forage safe from predators. They often feed by snipping off the root of a plant with their sharp incisors and pulling the rest of the plant down into their tunnel. Roots and stems that are not eaten right away are cut into pieces. These pieces are then carried in their cheek pouches to an underground chamber where the food is cached.

In the burrow system, nesting, toilet and food cache (storage) chambers are built below the frost line, allowing the pocket gopher to stay active all winter. In the winter, pocket gophers often tunnel under the snow outside their burrows to search for plants to eat.



Status and Range

Northern pocket gophers are common to abundant in southern and central Saskatchewan. High populations of these gophers are often found on range land that has been overgrazed. This is because overgrazing promotes the growth of weeds that are favoured gopher food.

Northern pocket gophers are found in the Prairie Ecozone, as well as in the southern Boreal Plain Ecozone.

Ecological Relationships

Although pocket gophers serve an important ecological function, some of their human neighbours are less than overjoyed by their presence. Northern pocket gophers may damage crops and gardens by feeding on them. They can also chew underground wiring and plastic irrigation pipe that interfere with their burrows. Their mounds of excavated dirt can damage farm machinery. Livestock can injure themselves by stepping into burrows. In addition, when the population of pocket gophers in an area grows large, they may compete with livestock for plants.

Pocket gophers help to enhance the soil. They push mineral-rich soil to the surface. Their faeces and uneaten plant material decompose and improve soil fertility. Their digging also helps to keep the soil porous. This helps water to permeate the topsoil, rather than just flowing away as runoff.

Predators of the northern pocket gopher include humans, weasels, badgers, skunks, foxes, snakes, coyotes, bobcats, cats, hawks, kestrels and owls. Pocket gopher burrows provide shelter for many other animals, such as ground squirrels, long-tailed weasels, mice, Ord's kangaroo rats, snakes, salamanders and toads.

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Ord's Kangaroo Rat

(Dipodomys ordii)

Description

Despite their name, kangaroo rats are not closely related to either kangaroos or rats. Their common name derives from characteristics they happen to share with these unrelated mammals. A kangaroo rat hops on its long hind legs like a kangaroo and has a long tail like a rat.

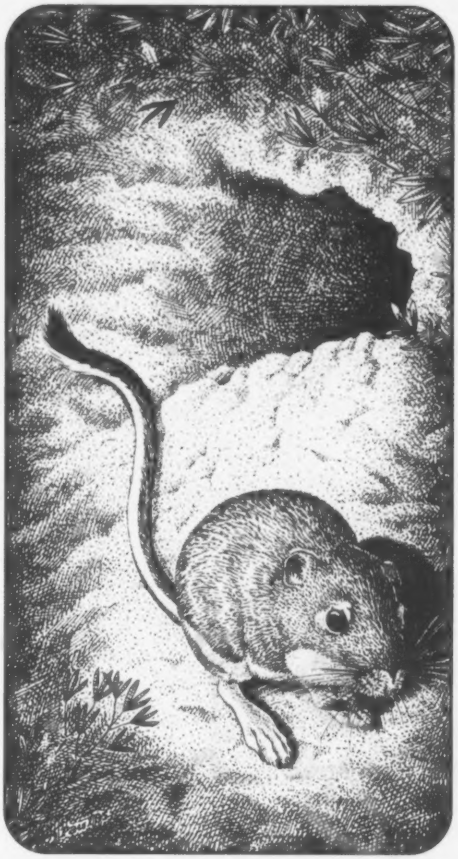
The upper parts of the Ord's kangaroo rat are tawny or pale yellowish brown. Their underparts and feet are white. A white line runs across each hip and down each side of the tail. Above each eye is a white spot. They have a black line on their muzzle.

Ord's kangaroo rats have small front feet, long back feet and powerful back legs. Their heads are large and their tails are longer than their bodies. The total length of a kangaroo rat is about 27 cm, including its long, tufted tail that itself is about 14 cm long. In Saskatchewan, the average weight of an Ord's kangaroo rat is about 70 g. Ord's kangaroo rats look much like pet gerbils.

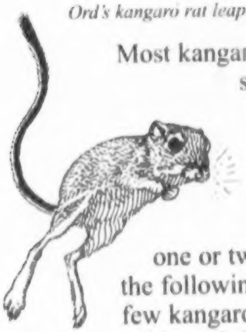
Habits

In Saskatchewan, Ord's kangaroo rats breed continuously from April to September. A female most likely has 2–4 litters per season.

Kangaroo rats are very territorial. Mating season is believed to be the only time they come together without fighting. The gestation period is 29–30 days. A day or so before she is ready to give birth, the female builds a grass-lined nest. By now, she has already cached many seeds in her burrow to feed on when she cannot leave her young. The mother is an attentive parent that feeds, grooms and retrieves any young wanderers by carrying them back in her teeth. The father probably does not help raise the young.



Litters range in size from 1–6 with an average of about three young. They are born naked, blind and deaf, spending their first 4–5 weeks in the nest. They become sexually mature between 60–83 days.



Ord's kangaroo rat leaping

Most kangaroo rats do not survive the winter. For every 10 individuals alive in the fall, probably only one or two will live to see the following spring. Very few kangaroo rats in the wild reach 2–3 years of age.

Food

Their diet consists primarily of the seeds of grasses and forbs (forbs are non-woody plants that are not grasses). In addition, they eat leaves, stems, roots and insects such as grasshoppers and moths. Ord's kangaroo rats drink water if it is available but are able to live without it by getting moisture from their food.

Habitat

Ord's kangaroo rats are found in dry areas with actively eroding sand dunes. Where eroding, natural sand dunes are not available, kangaroo rats sometimes live along sandy or gravel roads and trails, or in summer fallow fields.

They require open areas so they can travel by hopping. They require sandy soils so they can dig burrows easily with their weak front legs.

Survival Strategies

As their name suggests, kangaroo rats usually travel by hopping on their back legs. Their long back feet and powerful back legs allow them to leap distances as long as 2 m and to travel as fast as 20 km/h. This enables them to quickly bound away from predators and to easily travel across sandy surfaces.

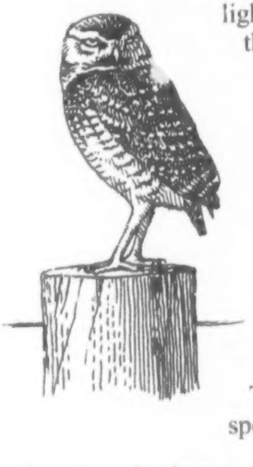
Quick Facts

- ✓ **hops on back legs**
- ✓ **prefers dry, sandy habitat**
- ✓ **local population vulnerable**
- ✓ **order Rodentia (gnawing mammals); family Heteromyidae (pocket mice and kangaroo rats)**
- ✓ **Prairie Ecozone**

Speedy retreats help kangaroo rats to avoid predators, as does another strategy. Kangaroo rats move in erratic, unpredictable ways when they are chased. The combination of speed and unexpected changes of direction reduce the chance of these diminutive rodents becoming a meal for a predator.

Kangaroo rats sandbathe by rolling in the dust and kicking it up onto their bodies. They then shake and scratch out the sand to dislodge dirt and parasites. Sandbaths also keep the oil secreted by their skin from matting their soft fur coats.

Kangaroo rats shun daylight, for low light conditions lessen the likelihood of being noticed by predators. In Canada, Ord's kangaroo rats only venture aboveground when it is very dark. Even bright moonlight or northern lights will cause them to remain in their burrows.



The burrowing owl, a danger to the Ord's kangaroo rat

Ord's kangaroo rats are well adapted to desert-like conditions. They forage at night, when it is cooler. Their days are spent in burrows, usually dug on the sides of hills or mounds. Often burrows are less than a metre deep and have several chambers for storing seeds. A separate chamber in the burrow houses a grass-lined nest. During the day kangaroo rats plug their doorways with sand. This seals out the hot air of the day and seals in the moisture from their breathing. Plugging the entrance with sand also serves to deter predators. As well, kangaroo rats dig a number of shallow holes into which they can quickly escape.

Ord's kangaroo rats carry food to their burrows using fur-lined pouches located on the outside of their cheeks. These are called external cheek pouches. Kangaroo rats turn their cheek pouches inside out in order to empty them.

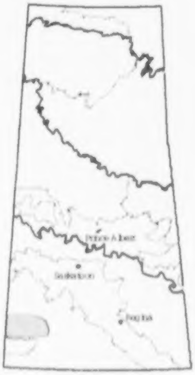
Ord's kangaroo rats are solitary. An animal will aggressively defend its territory against other kangaroo rats. Jumping in the air, they kick at one another with clawed back feet. They may even flail opponents with their long tails. Kangaroo rats have been known to turn around and kick sand in the eyes of rattlesnakes and other predators.

Faced with our challenging winters, the behaviour of Ord's kangaroo rats in Canada differs from those in the United States and Mexico. In those countries, where the climate is more benign, kangaroo rats do not hibernate during winter. In Canada, however, they do hibernate when cold and snow prevent them from foraging.

Ecological Relationships

Predators of the Ord's kangaroo rat include owls (such as the burrowing owl, short-eared owl and great horned owl), snakes (especially rattlesnakes), badgers, skunks, foxes, weasels and coyotes.

Hawks prey on kangaroo rats that are unfortunate enough to be aboveground during the day. If its burrow is destroyed during daylight hours, a kangaroo rat is vulnerable because it has no shelter and it cannot see well in bright light. Sometimes farm machinery working summerfallow inadvertently turns over or collapses burrows.



Status and Range

In Canada, there is only one subspecies of Ord's kangaroo rat, *Dipodomys ordii terrosus*. It is found only in southwestern Saskatchewan (Great Sand Hills, Burstall Sand Hills, Webb Sand Hills and Westerham Sand Hills) and southeastern Alberta. In Saskatchewan, Ord's kangaroo rats live in the Prairie Ecozone.

Ord's kangaroo rat is listed as a species of "special concern" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), meaning a species with special characteristics that make it sensitive to human activities or natural events. In Canada, the small, restricted population of Ord's kangaroo rat, which is at the northern edge of its continental range, makes it of "special concern."

Some scientists believe kangaroo rats may play an important role in dispersing seeds.

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Beaver

(Castor canadensis)

Description

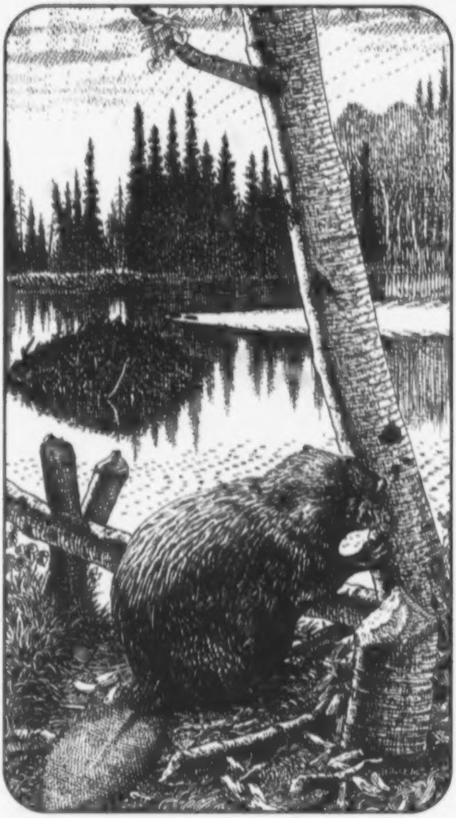
A unique feature of the beaver is its large, flat, paddle-shaped tail. The hairless tail is covered with black scales. The beaver itself is covered with two kinds of fur. The most obvious are the guard hairs: heavy, stiff fur which ranges in colour from light to very dark brown. Underneath the guard hairs is the softer, shorter underfur. The underfur helps to keep the beaver warm, while the guard hairs help to protect the underfur from wear and tear. Beavers have large incisor teeth. Their back paws are strong and webbed which helps them to swim. Their smaller, more agile front paws are used to grasp twigs, mud, stones, food and such. Adults average 14–29 kg in weight and 64–76 cm in length.

Habits

The beaver is one of the few animals that can intentionally change its environment. By building dams across creeks and rivers, beavers create ponds in which they build their homes called lodges. They are so good at building that their dams can hold back flood waters from heavy rains or melting snow.

Beavers build dams and lodges by mixing mud with green branches and small logs. A beaver lodge is often the shape of an igloo. All entrances to the beaver lodge are underwater, but the living area is built above the waterline.

Beavers usually mate in January or February and the 2–8 kits are born in the lodge around May or June. The kits are born with fur and teeth and are able to walk and swim not long after birth. Within a few weeks, they are ready to make trips out of the lodge. Kits begin eating the leaves their parents bring to the lodge when they are only a few days old, but the mother keeps nursing them until they are about 8–10 weeks old.



Beavers generally live in colonies of 6–12 individuals. A colony frequently consists of the two parents, their kits and yearlings (kits that were born the year before). When a young beaver reaches two years of age, it leaves the colony, travelling the waterways looking for unoccupied territory. There the young beaver will be able to start a colony of its own.

Food

During the summer months beavers eat aquatic plants, grass, sedges, bark, green twigs and leaves. Before winter, beavers stockpile a cache of logs and branches under the water from which they can feed over the winter. Aspen trees are their favourite, but they also like willow and birch.

Habitat

Beavers need a source of fresh water, such as a lake or stream. A water body surrounded by aspen trees provides good habitat because aspen is a preferred food. Other forest shrubs and trees such as willows, birch and balsam poplar can also support beaver colonies.

Survival Strategies

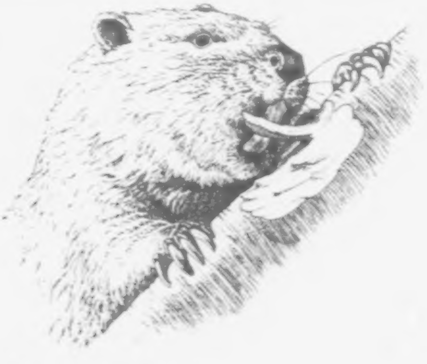
Beavers can hold their breath for as long as 15 minutes. That is enough time to do a lot of work underwater and to get away from predators.

A beaver's front teeth grow continuously throughout its lifetime. Constantly sharpened by use, these teeth enable beavers to cut down trees to build dams and lodges.

Beavers construct dams to create ponds and increase water depth. They can then build lodges that will be surrounded by water and relatively inaccessible to land predators. Because ponds freeze from top to bottom, deeper ponds are less likely to freeze all the way to the bottom. Beaver must be able to swim to their food cache, and the food cache must not be ice-bound if the animals are to survive the winter. Sufficient water depth is important to the beaver's survival.

Quick Facts

- ✓ paddle-shaped furless tail
- ✓ often builds dams
- ✓ live in ponds, lakes or streams
- ✓ order Rodentia (gnawing mammals); family Castoridae (beavers)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones



Beaver gnawing on bark

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Beavers build strong, thick walled lodges that keep out most predators. The lodge has a breathing hole in its top for fresh air.

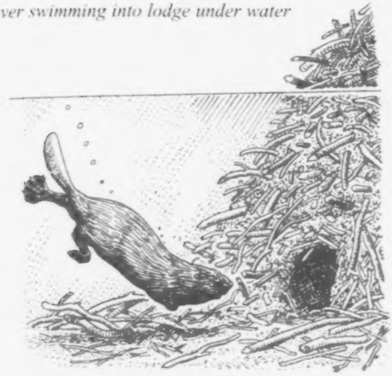
The long, wide tail of the beaver acts as a rudder when the beaver is swimming. It helps the beaver to balance itself when on land or cutting trees and is also used to warn of danger. When alarmed, a beaver slaps its tail against the water, making a very loud noise.

The winter food cache is built in September and October. The parents and yearlings cut branches, drag them underwater and anchor them at the bottom of the pond. Then after the surface of the pond freezes in late fall, the beavers are able to swim out of their lodge to get food from their cache.

Ecological Relationships

Beavers are one of the largest rodents in the world and can defend themselves against many predators. However, powerful carnivores such as wolves, coyotes and bears are able to capture them.

Beaver swimming into lodge under water



Otters can be dangerous, too, because they can use the underwater entrances to a beaver lodge to reach the occupants. Occasionally, mink prey on beaver kits.

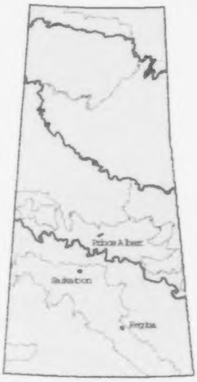
Beaver ponds benefit many species including muskrats, mink, raccoons, deer, ruffed grouse, waterfowl and small birds such as red-winged blackbirds.

Eventually sediment brought downstream with the current will fill in a pond and so cause the beavers to move away. Over time, a filled-in beaver pond will become a meadow.

On the prairies, drought has a negative effect on beaver populations.

Aboriginal peoples have long relied on the beaver as a source of food and clothing. Starting in the 1600s, beaver began to be very popular with fur traders from Europe. As the beavers in one area dwindled, the fur traders moved to new areas in search of more animals. Thus, the beaver is largely credited with spurring European exploration and settlement of Canada as traders pursued the valuable pelts.

Few beavers remained by the 1900s. Today, however, beaver populations have recovered. In Saskatchewan, some people consider them to be a nuisance and believe that there are too many of them. Beavers can cause flooding of forests, crops and ranchland. Bridges, culverts and road-grades are also sometimes damaged by beaver activities. As well, beavers may cut down trees considered valuable for timber and trees in farm shelterbelts.



Status and Range

Beavers are common to abundant throughout most of Saskatchewan. Only in the extreme north-eastern corner of the province are they rare.

Beavers are found in all the ecozones within Saskatchewan: Prairie, Boreal Plain, Boreal Shield and Taiga Shield.

Beavers are valuable furbearers. Approximately 40,000–75,000 are taken by trappers each year in Saskatchewan.

In some dry areas of Saskatchewan, or after periods of drought, farmers and conservationists appreciate the beaver because it creates ponds that provide water for livestock and other wildlife.

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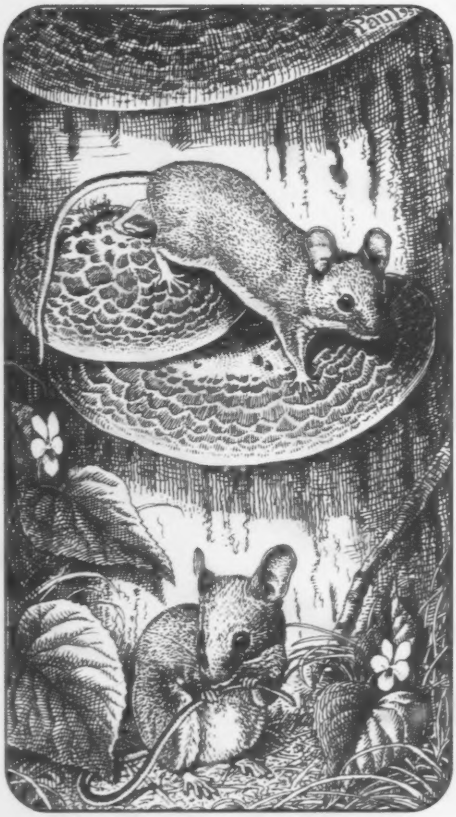
Deer Mouse

(Peromyscus maniculatus)



Description

This mouse got its name from its reddish-brown upperparts and white underparts, a pattern similar to the colouring of a deer. Not all deer mice, though, have this colouration: they range in colour from reddish-brown to sandy to dark brown or grey. Their tails are black to rusty brown on top and white underneath. Young deer mice tend to be a darker grey than adults, but still have white underparts.

Big eyes, big ears and a pointed nose with long whiskers are all evidence of this species' nocturnal habits. Their large ears are covered with fine grey fur. There are small white tufts of fur behind each ear.

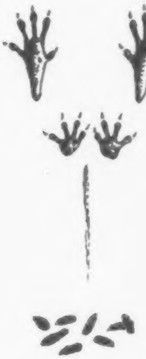
Deer mice weigh about 28 g and are 11–20 cm long, including their tail of 6–12 cm.

Habits

Although the length of the breeding season depends on climatic conditions, it usually occurs between spring and fall. Female deer mice are able to become pregnant again almost as soon as they give birth. As the gestation period is only 22–35 days long, 2–4 or more litters may be born to each female in a season.

A deer mouse may be monogamous (having only one mate) or it may be promiscuous (having two or more mates). Litters range in size from 1–9 young, with an average of four. Newborn deer mice are blind with pink skin and no fur; even at birth they have whiskers. Their eyes open at 13–14 days. Young are weaned at one month. The father is often involved in raising his offspring. He may help keep the litter warm, clean the young mice, retrieve them if they wander away or take them on trips to forage for food. If threatened, both parents often will carry away their litter to a new nest.

Young mice are generally independent by 18–25 days of age. Females are able to breed by 32–35 days of age, and males, by 40–45 days. Due to cold winters and their many predators, deer mice


Deer mouse tracks and scat

do not live long in the wild, where their maximum lifespan is probably less than three years and most do not even live as long as a full year.

Food

The deer mouse is an omnivore (eats both meat and plants). Seeds make up a major part of its diet. It also eats insects, caterpillars, spiders, nuts, acorns, mushrooms, flowers, berries, birds' eggs, frogs, salamanders and crop grains.

Habitat

This species occupies a variety of habitats and probably has one of the widest distributions of any North American mammal. It can be found in areas as diverse as forests, pastures, grasslands, sandy areas and in buildings. The only places in which deer mice are not generally found are wet areas.

Survival Strategies

Deer mice use a variety of nest sites. These include abandoned burrows, hollow trees, logs and even old bird or squirrel nests. These nests are lined with dry grass, feathers, soft plants or hair. Deer mice usually have 3–5 nests within their home range and move to a different nest every few days.

Deer mice are nocturnal. By staying in their nests most of the day, they avoid diurnal (day-time) predators such as hawks. Similarly, to avoid detection even by nocturnal predators, deer mice are less active during bright, moonlit nights.

Quick Facts

- ✓ adaptable in food and habitat
- ✓ abundant in Saskatchewan
- ✓ found in various habitats
- ✓ order Rodentia (gnawing mammals); family Muridae (rats, mice and voles)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga ecozones

They use their strong sense of smell to find food. Research has shown that if a deer mouse has a choice, it chooses seeds with the highest caloric content.

A deer mouse is able to carry several days' worth of food in its roomy cheek pouches. During the fall, it uses this ability to cache (store) piles of food in preparation for winter. Although deer mice are not true hibernators, they do enter a torpor during which their body temperature drops. This torpor allows them to save a great deal of energy. While in this state, deer mice often huddle in groups of 3–12 or more to conserve heat.

Winter can make life difficult for deer mice. Like many other small rodents, they avoid frigid temperatures and chilling winds by living under the snow. Deer mice excavate tunnels and chambers under the snowpack. A thick layer of snow (at least 30 cm deep) insulates the tunnel-dwellers from the harsh weather above. Deer mice spend much of the winter below the snow, in what is termed a "subnivean" environment.

If the snowpack is uniformly thick, mice are relatively well protected from the elements. However, snow depth may not be constant across the landscape. An uneven distribution of snow affects where the deer mice are found. On grasslands especially, snowdrifts form because of the wind. Sometimes there is little snow cover in the troughs between the snowdrifts. Mice tend to stay where the insulating layer affords more protection, that is, under relatively deep snowdrifts. Fewer mice are found in the sometimes bare troughs.

Though mice do die during the winter from cold or lack of food, mortality is likely greater during fall and spring. Often there is little or no snow on the ground during late fall and early spring, leaving the mice exposed to cold temperatures and biting winds.

Deer mice climb well. They also swim well, especially as a means of escape when being pursued. Deer mice tend to know their home ranges intimately and thus are able to quickly detect something amiss. When foraging for food, they often stop and rise up on their back legs to sniff the air. If they sense immediate danger, they may freeze in position so as not to attract attention.

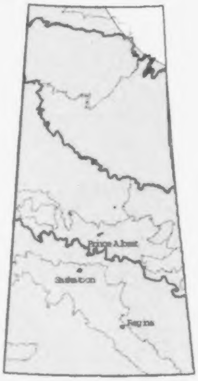
Ecological Relationships

This small mammal is an important link in the food web, providing food for many predators. Owls, weasels and foxes are probably its most common predators, but wolves, coyotes, bears, raccoons, minks, skunks, squirrels, short-tailed shrews, snakes, large fish and cats also prey on this secretive little rodent.

Besides providing food for so many species, the deer mouse itself feeds on insects and helps to keep populations of these six-legged invertebrates in balance.

The deer mouse can be destructive to crops. It sometimes enters human homes and cottages and may do considerable damage.

Unfortunately, this endearing species harbours a virus that can be transmitted to humans. Hantavirus has been found in the urine and faeces of some deer mice. Touching surfaces contaminated with the virus or breathing contaminated air may cause a serious and sometimes deadly pneumonia-like illness in humans. People in Saskatchewan and Alberta, as well as other places in North America, have been infected in recent years. It is important to consult health and wildlife experts if you plan to work near or around places where many deer mice are found.



Status and Range

In Saskatchewan, two subspecies have been found: the paler *Peromyscus maniculatus osgoodi* in the south and *Peromyscus maniculatus borealis* in the northern and central regions of the province.

Deer mice are abundant and found throughout Saskatchewan, except in the extreme northeast corner of the province. This species is found in all the ecozones within Saskatchewan: Prairie, Boreal Plain, Boreal Shield and Taiga Shield.

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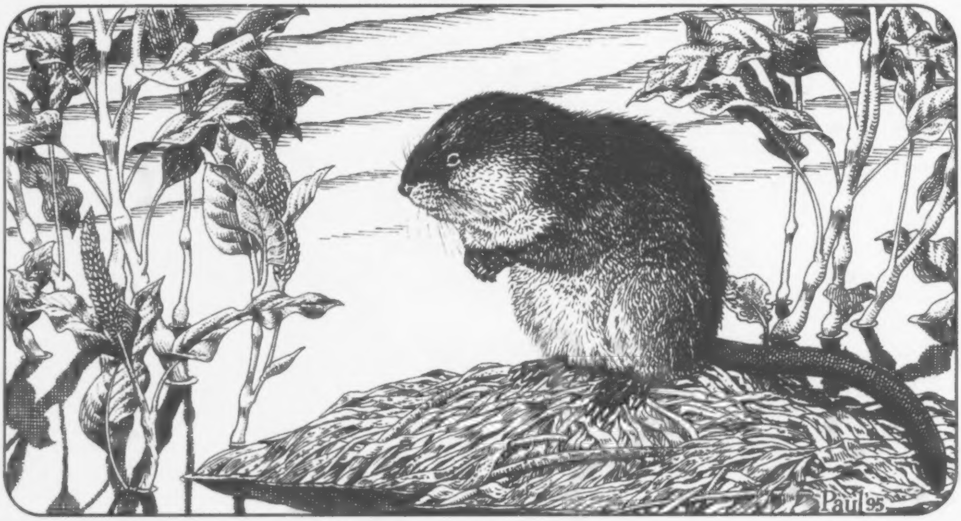
Muskrat

(Ondatra zibethicus)



Description

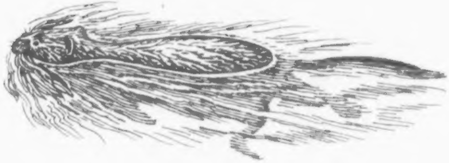
Muskrats are about the size of a rabbit and weigh an average of 1.5 kg. They are about 50 cm long from the nose to the tip of the tail. Muskrats have short, dense underfur with long guard hairs on top. Their colour ranges from silvery brown to shiny dark brown with light brown, yellowish or greyish underparts.

Muskrats have round bodies and short legs. Their small eyes and small ears are almost completely hidden by fur. Their front paws are black and furless and look a little like human hands. Muskrats have long, thin, vertically flattened tails that are about 25 cm long and covered with scaly skin. Like other rodents muskrats have four front teeth (incisors) that protrude. These teeth grow continually, but are worn down by constant chewing on vegetation.

Habits

In Saskatchewan, muskrats may have as many as three litters a year. They begin mating when the ice breaks up, usually around March. The young are born 25–30 days later. The last litter of the season is generally born in August. Muskrat litters can be quite large; they range in size from 2–11 young. As such, muskrats have a high reproduction rate.

Some scientists believe that male muskrats sometimes help to raise their young, but neither parent is overly attentive. Muskrats are born blind and without fur. They grow quickly and have some fur by the time they are a week old. Their eyes open at two weeks. By 2–3 weeks, the young leave the lodge for short trips and can already swim and dive well. By three weeks, they are weaned and by six weeks are able to care for themselves.



Muskrat swimming

Muskrats can live as long as four years, but it is believed that fewer than two out of 10 muskrats live to see their first birthday.

Food

This species eats the roots, stalks, bulbs and leaves of emergent vegetation (plants that grow out of water). Bulrushes and cattails are two of their favourites. Muskrats also eat green algae, especially in deeper water bodies where there are few emergents. In the winter, muskrats feed on submerged plants (plants that live completely under the water). They may also eat crops such as corn, alfalfa or soybeans that happen to be planted close to shore. When plants are unavailable, muskrats may eat molluscs, insects, fish, reptiles or amphibians.

Habitat

Muskrats live in marshes, ponds, slow streams, deep wetlands, drainage ditches and marshy parts of lakes. These animals choose to live in still or slow-moving bodies of water that have plants growing in the water or along the banks.

Muskrats do best in water between 1–2 m deep — enough to prevent the bottom from freezing in winter, but shallow enough for sunlight to reach the water plants. Muskrats also require water levels that remain fairly constant.

Survival Strategies

Muskrats have waterproof fur and are well suited to life in the water. They are excellent swimmers and can swim long distances. The toes of their large back feet are covered with fringes of bristly fur that help to push water when the muskrat swims, helping muskrats to swim in the same way as swim fins help people. On the surface of the water, a muskrat uses its tail as a rudder. Underwater, its tail helps to propel the muskrat forward.

By reducing their heart rate and relaxing their muscles, muskrats are able to decrease the amount of oxygen they use. This helps them to stay underwater for as long as 17 minutes, but they usually only hold their breath for 2–3 minutes.

Muskrats can close their ears and nostrils to keep out water. They can also close their lips behind their front teeth, which allows them to chew underwater without choking on water.

Muskrats build two types of lodges for shelter. The first kind is built by piling mud and plants in the middle of the water to form a mound that sticks out of the water. The muskrats then burrow into the mound from underneath the water and build their living chamber above water level. The second type of lodge is built by burrowing into the bank of a stream or the shore of a lake from underneath the water.

In the winter a thick layer of ice forms over the water and muskrats spend most

Quick Facts

- ✓ long, furless tail
- ✓ round body
- ✓ common to abundant
- ✓ order Rodentia (gnawing mammals); family Muridae (rats, mice and voles)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones

of their time in the lodge. Typically, more than 25 muskrats share a lodge to take advantage of their combined body warmth.

After freeze-up, muskrats build push-ups on the ice. Too small to hold more than one muskrat, they resemble small lodges. A push-up is made by first gnawing or enlarging a hole in the ice, and then covering the hole with a dome of plant material. This dome freezes in the cold air, providing an insulated winter feeding station out of the sight of predators. Inside, a muskrat can climb out of the water and rest or eat.

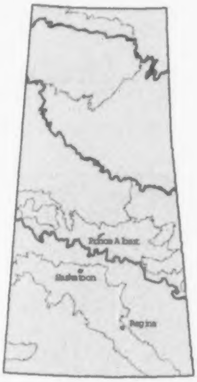
Ecological Relationships

Muskrats have many predators including mink, otters, wolverines, fishers, weasels, raccoons, badgers, foxes, coyotes, wolves, dogs, lynx, bobcats, black bears, hawks, owls, ravens and humans. Northern pike and snapping turtles prey on the young.

Muskrats are one of the most commonly trapped animals in Saskatchewan. From 100,000 to 400,000 or more are trapped each season. Pelts are used to make hats, coats and trim. The meat is considered a delicacy.

By eating algae and other aquatic plants, muskrats create large areas of open water that attract waterfowl and shorebirds. Canada geese and other waterbirds may use the tops of muskrat lodges as nesting platforms.

Very high populations of muskrats can damage dikes and destroy wetlands by eating almost all the vegetation. Lower population densities encourage the establishment and growth of many different plant and animal species, and thus contribute to biodiversity.



Status and Range

Muskrats are common to abundant throughout Saskatchewan. The highest densities of muskrats appear to be found in marshes in the Cumberland Delta area of east-central Saskatchewan. During the 1980s, the muskrat population declined in southern Saskatchewan due to drought. As well, the drainage of wetlands has led to the loss of local populations.

Muskrat populations seem to increase and then crash every 6–10 years. In southern Saskatchewan, muskrats appear to follow a six-year population cycle. The reason for these fluctuations is unknown, although researchers hypothesize that it may be caused by changes in the availability of food and water, or by marsh succession. As marshes age, there is less open water but more dense vegetation, factors which may affect muskrat numbers.

Muskrats are found in all the ecozones within Saskatchewan.

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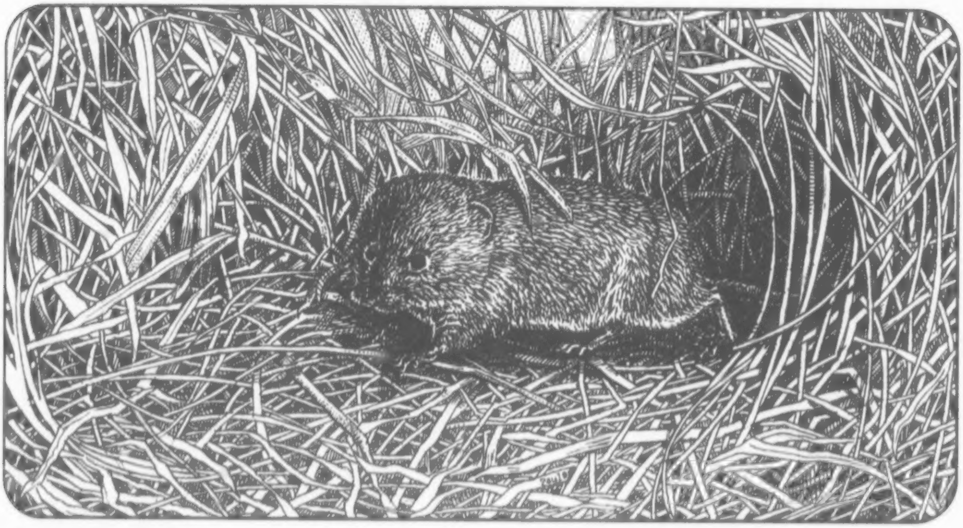
Meadow Vole

(Microtus pennsylvanicus)



Description

The meadow vole has a short tail and smallish ears. It has a stocky body with short legs, a blunt nose and small eyes. At most, the meadow vole weighs 70 g. This species is 15–20 cm long, including its 4–5 cm tail.

The fur is long, dense and soft. In summer, this vole's upperparts are a grizzled rusty brown or dark brown; its belly is greyish. In winter, the fur becomes longer and greyer. Young meadow voles are a slate grey colour and are darker than the adults.

The meadow vole is not a mouse, although it resembles one.

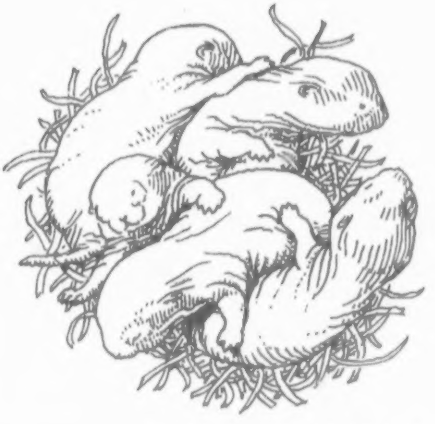
Habits

Meadow voles are incredibly prolific. One scientist calculated that if all the descendants of a single pair of voles in captivity lived to breed, by the end of one year there would be more than one million voles scurrying around!

Wild populations are seldom as prolific as their captive counterparts. Wild voles are shorter lived, mostly due to predation. Some reach 1–2 years of age, but most do not survive more than a month or two. Voles that are alive in early spring — because they survived the winter — usually are no longer alive by early autumn.

In Saskatchewan, meadow voles breed from spring until autumn. Females can usually reproduce when they are three weeks old. Males become sexually mature at 6–8 weeks of age. A female is able to become pregnant again as soon as she has given birth.

After a gestation period of 21 days, the female gives birth to the pink, naked, blind and helpless young. Litter sizes



Meadow vole young, blind and naked

range from 1–9, with an average number of 4–5 young. The young remain in their grass nest for about a week, by the end of which they have grown some fur. By 8–10 days, their eyes have opened and the nestlings are beginning to crawl, leaving the nest for the first time. They are weaned at 11–14 days. By three weeks of age they are ready to set out on their own, even though they do not reach adult weight until they are about three months old.

Food

Meadow voles primarily eat the seed heads, leaves, flowers and blossoms of plants such as grasses and sedges. They often cut down long stems to get at the nutritious tops of plants. Small piles of plant clippings are evidence that voles are around. In the winter or during dry times, when little green vegetation is available, meadow voles also eat roots, seeds, dead plant material, insects, snails, young birds and the bark of young trees.

Habitat

Their preferred habitat is wet meadow. However, the species may inhabit any humid, tall-grass habitat, such as marshes or bogs, abandoned fields, prairies and vacant lots. They also live at the edges of woods and in openings within the woods, where there is a protective carpet of grasses, sedges or mosses. Meadow voles tend to avoid deep forests and high, dry grassland habitats.

Quick Facts

- ✓ mouse-like
- ✓ active all year
- ✓ abundant in Saskatchewan
- ✓ order Rodentia (gnawing mammals); family Muridae (rats, mice and voles)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones

Survival Strategies

The highest populations of meadow voles are usually found in dense vegetation because it provides shelter from predators. Meadow voles clear paths or surface runways through the vegetation by gnawing through plant stems. In dense cover, these tiny, crisscrossing paths are concealed by thick grass. This allows the voles to travel quickly and remain hidden from predators. Meadow voles also burrow underground. In the winter they build tunnels under the snow where they are hidden from predators and insulated from the cold. To find food in the winter, meadow voles forage for plant material in their tunnels as well as from their food caches.

Meadow voles build nests from grasses. These nests, which may be built above or below ground, serve as shelters and as places to raise young. In the winter, meadow voles often nest communally to share body heat.

Like all animals of the order Rodentia, meadow voles have incisor (front) teeth that grow constantly. This allows them to eat the tough grasses which otherwise would wear down their teeth to stubs.

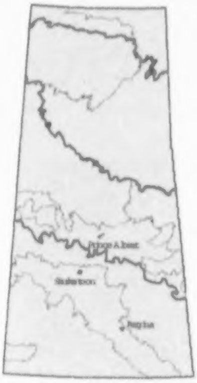
Ecological Relationships

Meadow voles are a major food source to many predators. These include foxes, raccoons, skunks, weasels, minks, badgers, wolves, coyotes, dogs, cats, fish and snakes. Even animals as small as shrews and as large as bears will hunt meadow voles. They are sometimes taken by smaller birds such as jays, crows, ravens, shrikes, gulls and herons. Burrowing owls, hawks and other owls also depend upon this species for food.

Humans will kill meadow voles because they can damage crops such as alfalfa or dine on garden vegetables.

The meadow vole population appears to cycle every 3–4 years. During one year, there will be many voles per hectare and the next year it may be hard to find even one. Although there is no shortage of hypotheses, no one really knows why these population fluctuations occur. Other animals are affected by meadow vole numbers. Least weasel populations may fluctuate in response. Marsh hawk reproduction tends to be more successful when the meadow vole population is high.

For the most part, little is known about how meadow voles and other small mammals affect plant species and ecosystems because few studies have been done.



Status and Range

The meadow vole is found in all the ecozones within Saskatchewan wherever there is suitable habitat.

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Porcupine

(Erethizon dorsatum)

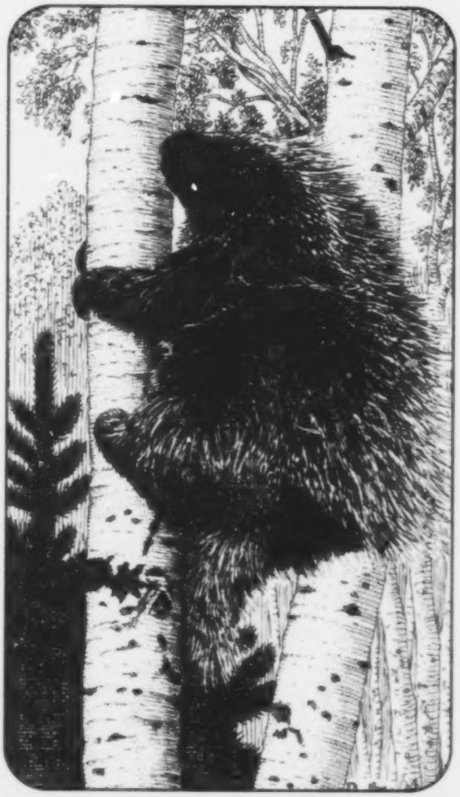
Description

Porcupines are famous for their quills. It has been estimated that each porcupine has about 30,000 quills on its body. The quills are white or yellowish with tips that are black, barbed and sharp. Quills on the forehead are about 2.5 cm long, while those on the porcupine's back may be as long as 6.3 cm.

Porcupines range in colour from brownish black to light brown. They have a dark brown or black woolly undercoat with very long guard hairs that cover their quills. Porcupines have small faces with small, round eyes, a blunt nose and small ears. Their incisors (front teeth) are long and orange. Their body is stout with short, bowed legs and a strong, thick, club-like tail. They have four toes on their front feet and five on their back feet. Each toe has a very long, curved claw. Typical adult males and females both weigh about 5.5 kg, but some hefty males can weigh as much as 12 kg. Porcupines are 60–100 cm long.

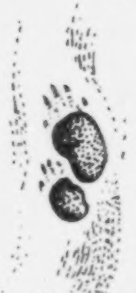
Habits

In northern latitudes, porcupines usually mate between October and December. Pregnancy lasts 205–217 days, about seven months. This is unusually long; most mammals of the order Rodentia have very short gestation periods. For example, deer mice (*Peromyscus maniculatus*) have a gestation period that is less than 35 days. Also unusual is the fact that porcupines usually only have one young, known as a porcupette. In comparison with a more typical rodent such as deer mice with an average litter size of four, porcupines have small families.



The single porcupette is born between May and July. Its first home is often under a log, stump or in a patch of brush. Young are well developed at birth. Although weak, their eyes are open, they have teeth and they are able to get around on their own. The pups are born with dark fur and soft quills. The quills harden as they dry. Young porcupines instinctively seem to know how to use their quills and tail to defend themselves.

Porcupine track with tail drag



As it grows older, the porcupette spends more time away from its mother. Scientists do not know exactly at what age the young is weaned, but estimate that it occurs within a month of its birth. The young porcupine is self-sufficient by October, and its mother is ready to mate again.

Porcupines are relatively long-lived, having lived to nine years of age in captivity. Researchers believe those in the wild have a similar lifespan.

Food

These chunky rodents are good at climbing to the tops of trees. There they can take advantage of foods that most other animals cannot reach. Porcupines use their large incisors to scrape bark from tree trunks. They also eat leaves, coniferous needles, berries, buds, twigs and woody shrubs. In spring and summer, porcupines will feed on the ground, too, eating plants such as grasses, sedges, dandelions and clover. Porcupines have even been known to swim to reach aquatic plants. Water lilies are a favourite.

Porcupines are herbivores. Like many rodents, they gnaw on old bones and shed antlers for minerals.

Habitat

Porcupines live in a variety of habitats. They inhabit coniferous, deciduous and mixed forests. They are also found on the prairies, along riverbanks where trees grow, in brushy coulees, on sagebrush flats and in wooded bottomlands beside rivers and creeks.

Quick Facts

- ✓ uses quills in defence
- ✓ spends much time in trees
- ✓ lives in various habitats
- ✓ order Rodentia (gnawing mammals); family Erethizontidae (New World porcupines)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones

Survival Strategies

Porcupines cannot run very quickly. They have a top speed of 3–5 km/h. So if they become alarmed, they may freeze in position, or they may try to escape by climbing a tree or hiding under a rock or log. If escape is impossible, the porcupine clatters or clacks its teeth as a warning. It then releases an unpleasant smell from a gland called the rosette, an area of skin found above the base of the tail. If these warnings are not enough to scare off a would-be attacker, the porcupine hunches its back. At the same time, the porcupine tucks in its head in order to protect it, and turns its back to its adversary. With quills erect, the porcupine stamps its back feet and lashes its strong tail at the attacker. Because they are loosely secured, quills can detach easily and become stuck in the attacker. A quill is difficult and painful to remove because it has a barbed tip. Left untreated, quills may work themselves deeper into the attacker over time; they can eventually cause death. Most animals (including humans) never forget an encounter with a porcupine. Contrary to popular belief, porcupines cannot aim and throw their quills.

Porcupines are excellent tree

climbers. Their paws are strong and have rough, thick-skinned pads on the palms, helping them to grip the bark while climbing trees. They can curl their long, curved claws around branches. Their claws act as hooks and are a help when climbing trees or grabbing branches to eat. Underneath their tails is a tuft of short, stiff bristles that point backwards. These brace the porcupine and help prevent it from sliding down the trunk. Stiff belly hairs serve the same function, increasing friction between the animal and the tree.

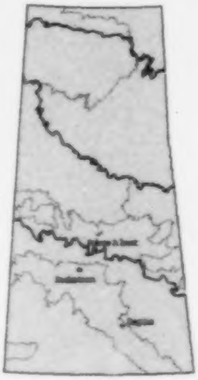
Porcupines do not hibernate. Instead, they remain active all winter, protected from the cold by thick underfur. They cannot walk well in deep snow, so when they travel they often walk in their own tracks. They do this until the snow is packed down. Porcupines spend much time in their dens which may be in hollow trees, rock caves, abandoned buildings, brush piles or under stumps. In colder areas, porcupines often take advantage of each other's body heat by sharing dens.

Ecological Relationships

Even though they are slow moving, porcupines have few predators because their quills provide excellent defence. Throughout their range, fishers (which attack their quill-less faces), cougars and humans are the main predators. Less frequent hunters include coyotes, wolverines, bobcats, foxes, lynx, bears, wolves and great horned owls.

Aboriginal peoples greatly respected this species because it provided meat during winters when other food was scarce. As well, many aboriginal people dyed porcupine quills. These were used to create ornamental quillwork patterns on garments and other items.

Porcupines have a strong attraction to salt. They often chew on worn leather or wooden tools that have perspiration on them. They will chew on buildings, especially those built from plywood. Sometimes porcupines damage or kill trees by stripping off too much of the bark. Porcupine encounters with domestic animals such as dogs and cattle often results in a nose full of quills. For these reasons, some humans consider the porcupine to be a pest and kill it.



Status and Range

The porcupine is found throughout the province, in the Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones. Most are found in the forested regions of central and northern Saskatchewan. Where there are few trees, especially on the southern prairies, porcupines probably survive the winter by feeding on the bark and twigs of willow, wild rose, choke-cherry, silverberry and other shrubs.

Biologists consider the provincial population to be stable.

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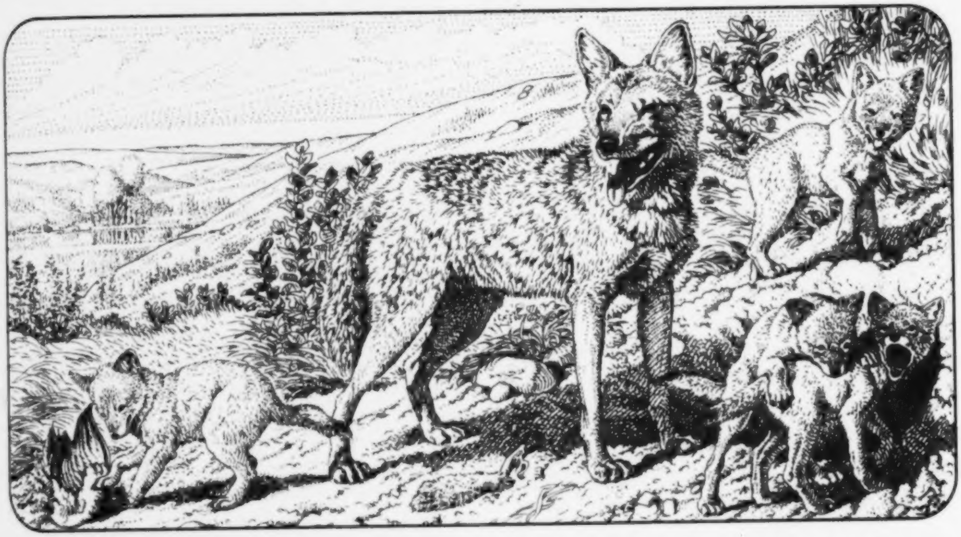
Order Carnivora
(Flesh-eaters)

Coyote

(Canis latrans)



Description

The coyote is a member of the dog family. It is similar in size to a small collie. Coyotes weigh 9–22 kg and are 104–150 cm long. Female coyotes tend to be smaller than males.

This species has a buff, grizzled grey back with a whitish throat and belly. Its slender muzzle, the back of its ears and its feet and front legs are light brown. There is a dark-coloured stripe on its back, caused by dark-tipped guard hairs. Coyotes have a black-tipped bushy tail that is 28–41 cm long, just less than half their body length. When running, coyotes carry their tails low or tucked between their legs.

Habits

Coyotes breed from January to March. The female usually breeds with her mate from the previous year; coyote pairs often have lifelong bonds. Dens are commonly made by renovating abandoned groundhog or badger burrows. Coyotes may also den in empty buildings, rock piles and hollow trees.

Pups, covered with soft brown fur, are born in April or May after a gestation period of 63 days. The average litter is about 5–6 pups. Both parents care for the pups. The father often hunts for his family. Sometimes yearlings or unmated coyotes that have joined the family unit help to raise the pups by bringing food and watching for danger.

Coyote pups open their eyes around 10 days of age. When the pups are about a month old, the mother begins to wean them. This is when the pups begin to eat regurgitated meat brought to them by the adults. At about four weeks, the playful pups are ready to go outside their shelter to romp and frolic. Around the middle of July, the pups are half grown and begin travelling with their parents. They need to learn hunting and other survival skills. In the fall, the pups either stay with their pack or disperse to find their own territory.

Food

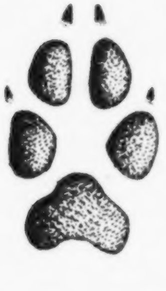
Coyotes are hunters and scavengers. Their diet changes, depending upon what is available. Their main food is small mammals such as hares, rabbits, woodchucks, squirrels and, especially, mice. They also eat carrion, insects, reptiles, amphibians, eggs, birds, fish and plants such as fruit and forbs. Coyotes hunt fawns and deer that are in a weakened condition.

Habitat

The coyote is very adaptable and does well in different habitats. Originally a native of open areas such as the grasslands, today the coyote is found in many other places, including woodlands, farmland, deserts, forest edges and valleys. Coyotes also seem to have adjusted well to living close to some towns and cities.

Survival Strategies

Keen senses of hearing and smell allow the coyote to locate small animals under snow, pouncing on them without even being able to see their prey. The coyote also has good vision and scans the land to check for prey. If it sees something, it sneaks up until close enough to pounce. The coyote uses its long, sharp teeth to grasp its larger prey by the throat and suffocate it.



Coyote track

Coyotes often hunt together to improve their chance of success. Frequently, one coyote will attempt to flush or dig out an animal, while another coyote waits to catch it as it runs away. Coyotes can run up to speeds of 64 km/h, which helps them to hunt hares and rabbits.

Quick Facts

- ✓ size of medium dog
- ✓ adaptable and intelligent
- ✓ "brush wolf," "yodel dog," "prairie wolf"
- ✓ order Carnivora (flesh-eaters); family Canidae (dogs)
- ✓ most common in Prairie, Boreal Plain and Boreal Shield ecozones

Coyotes cache extra food, coming back to eat it at a later time.

Adult coyotes are very protective of their young and will attempt to lure enemies away from the pups. The mother will even move the pups to a new den if she feels that her young are in danger. Pups that have an extended family to help feed and protect them seem to have a better survival rate than do pups that have only their parents.

Coyotes make a high-pitched, yipping-yowling sound. It is believed these vocalizations are used to bring the animals closer together, to help them bond as a group, and to announce their territory to other coyotes and animals.

Wolves, coyotes and foxes occupy similar niches and are not tolerant of one another. Few coyotes are found in areas where there are a lot of wolves, and few foxes are found in areas where there are a lot of coyotes.

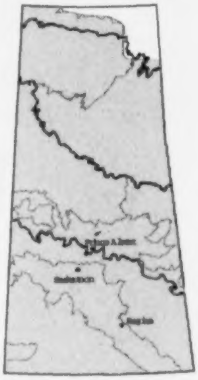
Besides humans, coyote predators include wolves, lynx, cougars, black bears, dogs and eagles.

Coyote howling

Ecological Relationships

There are some coyote-human conflicts. Past control programs used traps, bounties and poison but often unintentionally resulted in the production of even more coyotes. That is because the survivors became more adaptable and prolific. Coyotes began reproducing younger and having larger litters. Control programs changed their hunting patterns. Targeted coyotes preyed on more livestock and fewer small mammals.

Today most control programs have been abandoned, and any coyote that is considered a nuisance is often dealt with on an individual basis. People are recognizing that coyotes do not kill as much livestock as was once thought. In fact, coyotes are beneficial because they prey on small mammals such as rabbits and ground squirrels that eat vegetation.



Status and Range

In Saskatchewan, the coyote is abundant in the Prairie and Boreal Plain ecozones. It is common in the Churchill River Upland Ecoregion of the Boreal Shield Ecozone.

There are fewer coyotes farther north. They are not found in the Selwyn Lake Upland Ecoregion of the Taiga Shield Ecozone.

Saskatchewan's coyote population may be increasing.

Coyotes are trapped for their pelt. Coyote fur is used for trim and to make coats and mittens. Between 12,000 and 26,000 coyotes are trapped each season.

Other human activities affect coyotes. Agricultural and forestry practices have helped the coyote expand its historical range. Removing large predators also benefits coyote populations.

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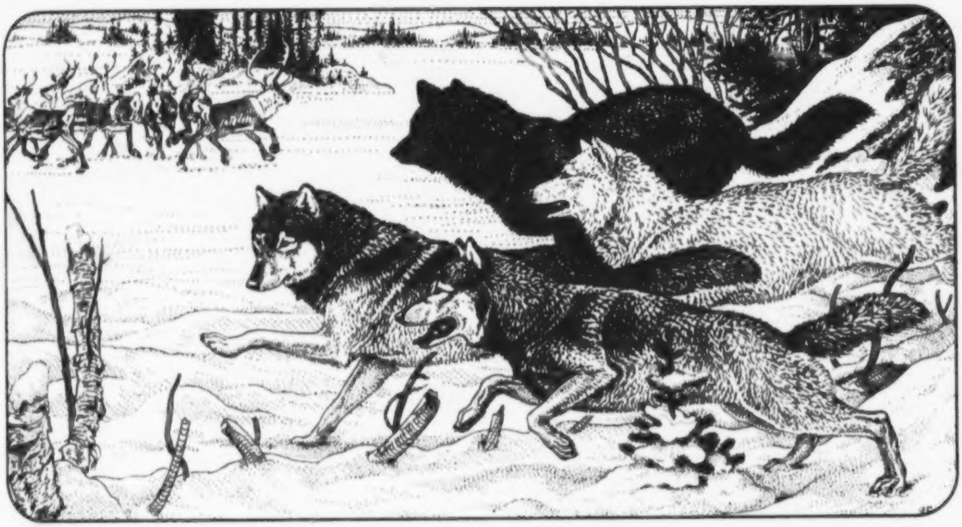
Wolf

(Canis lupus)



Description

The most common colour is probably a greyish brown body with light brown legs, but wolves come in various mixtures of white, grey, black, brown and buff. Wolves are larger than a large dog, with longer legs and larger feet. They have large heads and teeth and a bushy tail, which they carry straight out behind them when running.

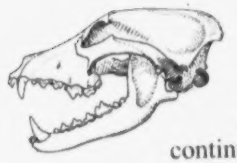
Male wolves are usually slightly larger than females. In Saskatchewan, males can weigh up to 55 kg, whiles females can weigh as much as 30–40 kg. From nose to tail, male wolves are about 140–170 cm in length, while females are about 130–150 cm.

Habits

Most wolves live in groups called packs. A pack is made up of 3–20 wolves, who travel, hunt, feed and care for young together. A pack consists of an alpha (dominant) female and alpha male with their young. Other pack members may include young from previous years or other individuals who have joined the pack.

Most of the time, only the alpha pair of the pack mate. Wolves breed in February or March, and the young are born in May after about nine weeks of gestation. From 1–14 pups may be born, but the average is six or seven.

Wolves often use an abandoned burrow or dig their own underground den for the pups. At birth, the helpless pups are covered in dark, grey fur. For the first few weeks, the mother stays with the pups and nurses them, while other members of the pack bring food to the mother. Although the pups' eyes open at 11–15 days, they are not able to see well until a few weeks later. The pups venture outside the den at around three weeks of



Wolf skull

age. By this time, they are quite playful. The mother continues to nurse the pups for 6–8 weeks, but sometimes goes hunting while another pack member cares for the pups. The pups are also fed regurgitated (incompletely digested) meat by the pack members.

The pups are moved to the rendezvous spot (the place where the pack meets) at 7–10 weeks of age. By August or September, the pups are nearly adult size and join the pack on their hunting trips. Most pups leave to find their own territories or join other packs before they are two years of age, although some may stay with the pack in which they were born.

Food

Wolves are carnivores and depend on ungulates (hoofed animals), such as deer, moose, caribou and elk, for food. Although they rely on larger prey for their survival, they also eat smaller mammals such as beaver, snowshoe hares, coyotes, fox, lynx, woodchucks, rabbits and mice, as well as carrion.

Habitat

Wolves live in a variety of habitat types but require large wilderness areas that are able to support large prey species. Wolves are found along the shores of lakes and rivers, in mixed forests, meadows, wetlands, grasslands and on tundra and mountains.

Survival Strategies

Wolves are social animals who usually live in packs and cooperate in hunting and raising young. Hunting in groups enables them to bring down large animals that a single wolf could not catch. Wolves are not as large, nor can they run as fast as most ungulates. Instead, they use techniques such as ambushing prey or driving prey into other wolves who are waiting out of sight. Wolves are often unsuccessful hunters but, fortunately, are able to go without food for more than two weeks. As well, if hungry, a wolf can eat many kilograms of meat in a single meal.

Wolf coats become thicker in the winter. The combination of a fine, short underlayer of fur and longer, outer guard hairs keeps the wolf warm in even the coldest weather. To sleep, the wolf curls up into a ball with its bushy tail over its nose. Wolves also have large feet and long legs which help them hunt in deep snow.

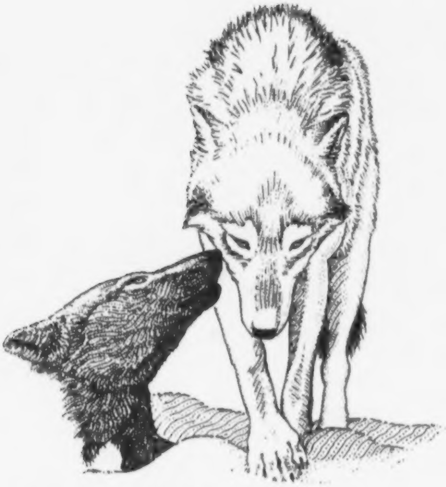
The wolf is famous for its spine-tingling howl. It is believed that the wolf howls to communicate with its pack members and to inform other wolf packs of its territory. Within their packs wolves communicate with one another through noises such as growls and whimpers and through complex body language.

Quick Facts

- ✓ **intelligent and social**
- ✓ **looks much like large dog**
- ✓ **also called gray wolf, timber wolf**
- ✓ **order Carnivora (flesh-eaters); family Canidae (dogs)**
- ✓ **Boreal Plain, Boreal Shield and Taiga Shield ecozones**

Ecological Relationships

Although there are no recorded attacks by wild wolves on people in North America, many people have feared wolves. Before 1973, there were bounties on wolves across Canada. Today, usually only wolves who are considered a direct



Wolves greeting each other

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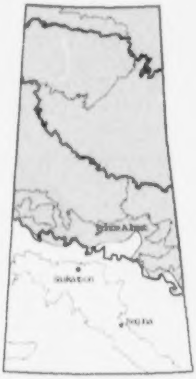
threat to livestock are exterminated. Wolves are competitors for ungulates, which humans hunt. As well, they sometimes kill livestock and eat animals caught in traps. Wolf pelts are used as rugs and to trim winter coats. In Saskatchewan, only about 300 are trapped each year.

Other than humans, adult wolves have few predators. Wolf populations are kept in balance by other factors such as disease and the availability of food. These factors affect the size of packs and litters, as well as the amount of aggression within and between packs of wolves.

Wolves contribute to the health of ungulate herds by hunting weak, injured, diseased and old animals. Wolves can be important predators of young ungulates. As well, the carcasses of partially eaten prey provide food for foxes, wolverines, bears, ravens and bald eagles.



Status and Range

Although wolves are found only in the northern hemisphere, 200 years ago they were the most widely distributed mammal on earth.

Although packs of prairie or bison wolves once followed the herds of bison across the Saskatchewan plains, the wolf is now almost completely absent from southern Sask-atchewan. Wolves are now found in the northern two-thirds of the province in the Boreal Plain, Boreal Shield and Taiga Shield ecozones.

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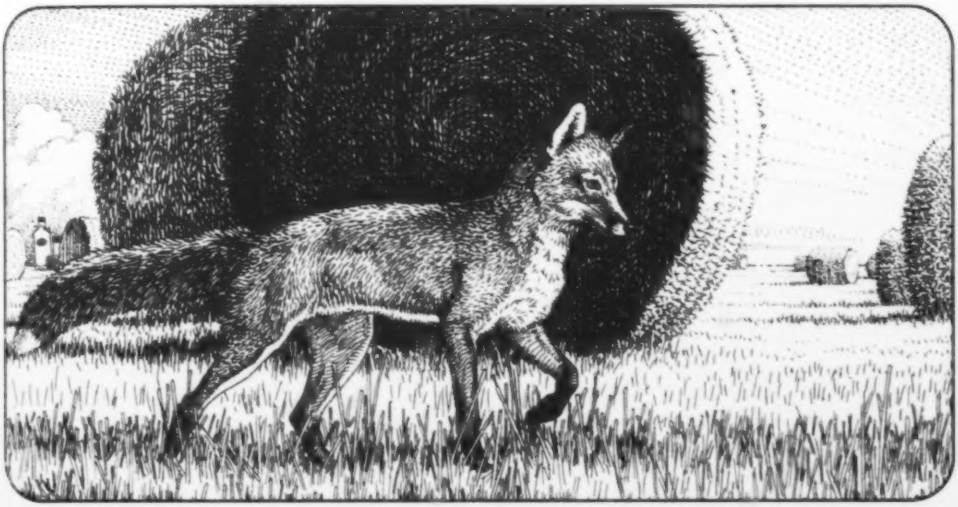
Red Fox

(Vulpes vulpes)



Description

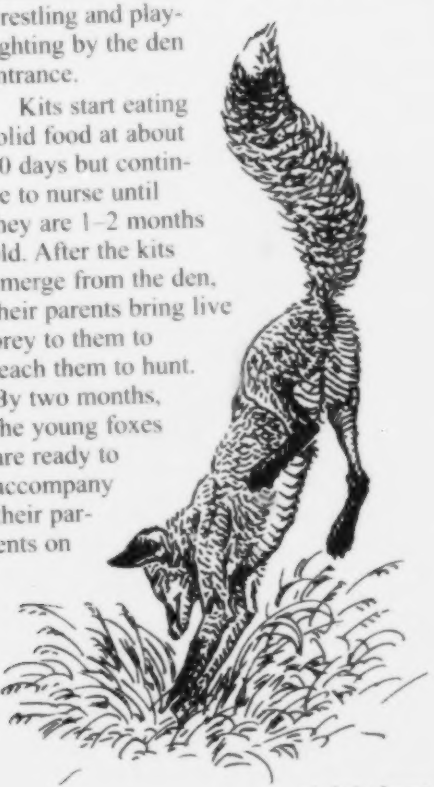
The red fox has a slender, graceful body, pointed nose, and large, pointed ears. Although they are called red fox, the colour of their long fur varies. Many red fox have brownish orange backs with buff-coloured undersides and black and white markings. Other red fox, called cross foxes, have a cross-shaped pattern of dark hair on their shoulders. Silver fox are black with silver-tipped guard hairs. All red fox have a long, bushy tail with a white tip. Adult red fox weigh about 3.5–7 kg and are 90–112 cm in length. Males are usually slightly larger than females.

Habits

Red fox breed between January and March. They are monogamous (have one mate). Researchers, however, do not know whether a pair stays together for life or only one breeding season. After breeding, the pair finds a den. They often enlarge an abandoned animal burrow or dig their own. Burrows are lined with soft, dry vegetation and frequently have more than one exit. Red fox also make dens in hollow logs, caves and thick brush.

After a gestation period of 51–53 days, the dark grey kits are born between March and May. Litter sizes range from 1–14, but the average is five. At first, the mother stays with the wooly, brown kits while the father hunts for the family. Once the kits are a couple of weeks old, the father may stay with them while the mother hunts. At two weeks, the kits are crawling and their eyes have opened. Between 4–6 weeks, sandy-coloured fur begins to appear. By the time the kits go outside, they have sandy-coloured coats which camouflage them against the sandy entrance of the burrow. They are very playful and keep themselves busy, wrestling and play-fighting by the den entrance.

Red fox mousing



Kits start eating solid food at about 20 days but continue to nurse until they are 1–2 months old. After the kits emerge from the den, their parents bring live prey to them to teach them to hunt. By two months, the young foxes are ready to accompany their parents on nightly hunting trips. By three months of age young foxes can feed themselves. Red fox can live as long as 12 years, but their average lifespan is 3–6 years.

Food

Red fox vary their diet depending on what food is available where they live. They eat many small mammals, including mice, squirrels, hares, rabbits, woodchucks, voles and muskrats. During fall and winter, they also depend upon berries and carcasses. In the spring, red fox may add nesting waterfowl, quails and pheasants to their menu. In the summer, they may also eat insects, fish, berries and grasses.

Quick Facts

- ✓ different colour phases: red fox, cross fox, silver fox
- ✓ common to abundant
- ✓ semi-open mixed habitat
- ✓ order Carnivora (flesh-eaters); family Canidae (dogs)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones

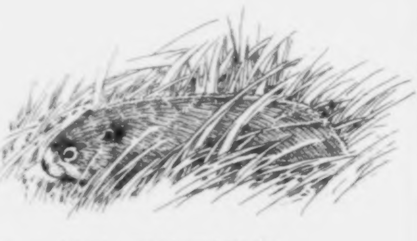
Habitat

Red fox seem able to adapt to a wide variety of habitats but prefer semi-open areas. They are not found in dense forest. Areas that have a mixture of habitat types such as field, brush and forest edge appear to support the highest densities. Red fox have adapted well to living in many agricultural areas. They seem less bothered by living close to humans than do many other species of animals.

Survival Strategies

The red fox is fast, agile and intelligent. It can run as fast as 42 km/h and has keen senses of smell, sight and hearing. It uses these abilities to avoid predators and to find and catch food.

Because the red fox is able to hear low frequency sounds, it can hear the soft rustle made by small mammals as they move through vegetation. Thus, it



The woodchuck, part of a red fox diet

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figures out the exact location of the unseen animal, and leaping high into the air, pounces on its prey. The red fox quickly kills its prey by piercing it with its long, thin teeth. Any extra food is buried in a shallow hole or cache, which the fox can most often relocate by smell.

Red fox usually rest during the day. They choose places where they are able to sense any danger approaching. In the winter, they curl up and use their bushy tails to keep their feet and noses warm.

Ecological Relationships

Red fox play an important role in the control of small mammals and insects that many people consider to be pests. They, however, sometimes hunt small farm animals and poultry. In addition, they can be carriers of rabies.

Coyotes, bobcats, wolves, lynx and dogs are some of the predators of the red fox. Humans are one of its main predators. The red fox pelt is economically valuable and is used as trim and in making coats. In Saskatchewan, between 14,000–20,000 red fox are trapped each season.

The social habits of the red fox are not well understood. They have been found living in communal dens with other foxes, badgers, and even wild cats and rabbits. They do not, however, seem to be found around coyotes. As the coyote population increases in a region, it appears that the red fox population decreases.

In the forest, red fox populations tend to fluctuate with the populations of their prey species.

Status and Range

Red fox are found throughout Saskatchewan. They are most common in the Prairie Ecozone and in some southern areas of the Boreal Plain Ecozone. Elsewhere — in the remainder of the Boreal Plain, Boreal Shield and Taiga Shield ecozones — they are common but less numerous.

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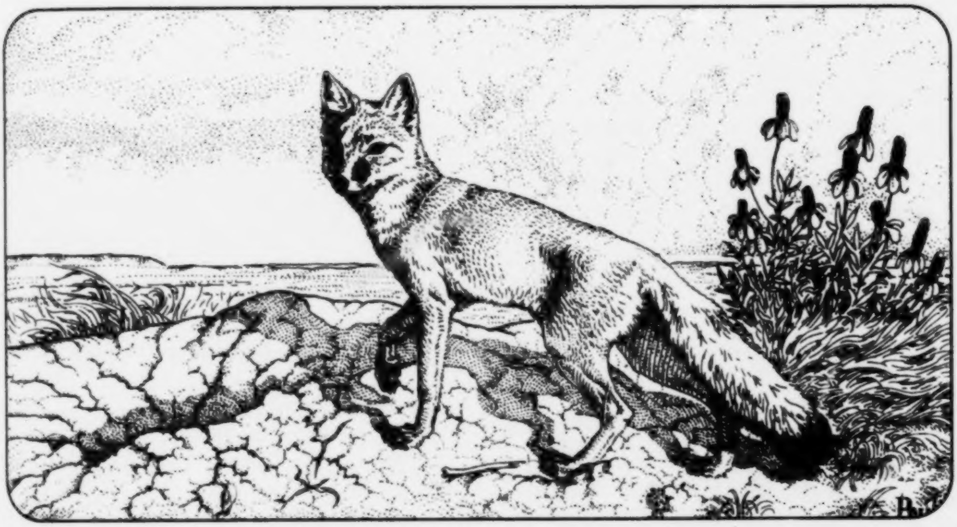
Swift Fox

(Vulpes velox)



Description

The swift fox, which is only about the size of a house cat, is the smallest member of the North American dog family. Males are slightly larger than females.

The best identifying mark of this little fox is the black tip of its tail. The swift fox has a black patch on each side of its nose. Its throat, chest and belly may be almost white. The winter fur is long, dense and buff grey in colour. In summer, its fur is shorter and reddish grey.

Individuals have lived to 13 years of age in captivity, but usually have shorter lives under natural conditions. Wild swift foxes have been known to live as long as seven years, although their average lifespan is only 2.5 years.

Habits

Swift foxes are mainly night hunters. Sometimes they hunt during the day for ground squirrels or when they need to feed pups. Swift foxes dig their own burrows or occasionally modify abandoned burrows of other small mammals. Mating occurs between January and March; about 3–6 young are born in the burrow in March or April. Pups are tiny at birth, but grow quickly and are almost adult size by the end of August. At 10–15 days, the pups' eyes open. When about a month old, they have their first outing from the den. Pups are weaned at 6–7 weeks. Young foxes stay with their parents for 4–5 months, during which time both parents help to care for them. By September the young are usually independent.

Food

Like other members of the dog family, swift foxes are primarily meat eaters. Mice, ground squirrels, prairie dogs, other small mammals and grasshoppers are the most important food items, but small birds, carrion, grasses and plants are also eaten. Over the fall months grasshoppers may make up half the diet of pups.

Habitat

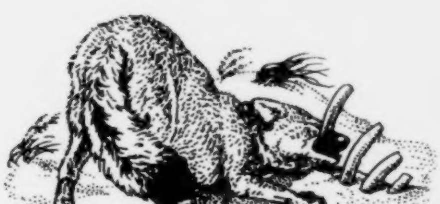
Typical swift fox habitat ranges from prairie to arid plains and shrubby desert. In Canada, swift fox prefer extensive, open grasslands and appear to avoid rugged areas, perhaps because there they may more vulnerable to predation by coyotes.

Survival Strategies

The swift fox possesses keen senses of hearing, sight and smell. It is an opportunistic hunter, taking advantage of a variety of foods. Swift foxes cache food throughout the year, particularly in the summer. When food is scarce, they return to a cache for a meal.

Swift foxes dig burrows in sandy loam, a type of soil in which it is fairly easy to dig. This den is dug in a place where the adults can easily detect approaching intruders. As well as being a place to raise pups, swift foxes use their burrows all year as shelter from weather and protection from predators.

The swift fox gets its name because it can run at speeds of more than 60 km/h to escape predators and capture food.



Swift fox gnawing antelope ribs in winter

Quick Facts

- ✓ small
- ✓ black-tipped tail
- ✓ endangered; is being reintroduced
- ✓ order Carnivora (flesh-eaters); family Canidae (dogs)
- ✓ Prairie Ecozone

Ecological Relationships

The swift fox is dependent on extensive areas of native prairie to provide the food and burrows it requires to survive. It preys on small mammals, insects and carrion. Small mammals such as voles are particularly important food items during the winter and spring. Grasshoppers are a staple food in late summer and fall. Voles and other important prey species require some patches of habitat that are undisturbed and thickly vegetated.

The swift fox's most common predator is the coyote, although eagles, badgers, dogs and bobcats also kill this little fox.

Records and legends of aboriginal peoples mention the swift fox as being important for ceremonial purposes. Swift foxes were trapped for their fur in the early 1900s when they were still abundant, although the fur was not considered to be very valuable. Pelts were often dyed to imitate better quality fox species and sold in Europe.

Many factors affected the decline of the swift fox. Cultivation of the grasslands led to a loss of habitat. Bison, which no longer roam the prairie, may have been a source of carrion for the fox. Overtrapping and hunting likely also contributed to the decline. Poisoning programs aimed at wolves, coyotes and ground squirrels often poisoned swift foxes too. In particular, poisons targeting

Bison herds, no longer a source of food

ground squirrels negatively affected swift foxes, for they relied on ground squirrels for food. Poisons wiped out most of the wolves, again causing problems for the swift fox. Without wolves to keep the coyote population in check, coyote numbers increased, and coyotes are one of the main predators of swift foxes.

Today, the swift fox reintroduction program enjoys strong support from landowners and has made this diminutive fox a symbol of prairie conservation.

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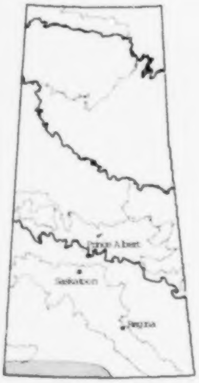


Status and Range

Once abundant on the prairie, the swift fox population declined in the early 1900s. The last wild swift fox in Canada was seen in 1928 near the Alberta-Saskatchewan border. More recently, in 2000 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) re-affirmed its 1998 decision to list the swift fox as an endangered species. COSEWIC defines endangered as being "a wildlife species that is facing imminent extirpation or extinction."

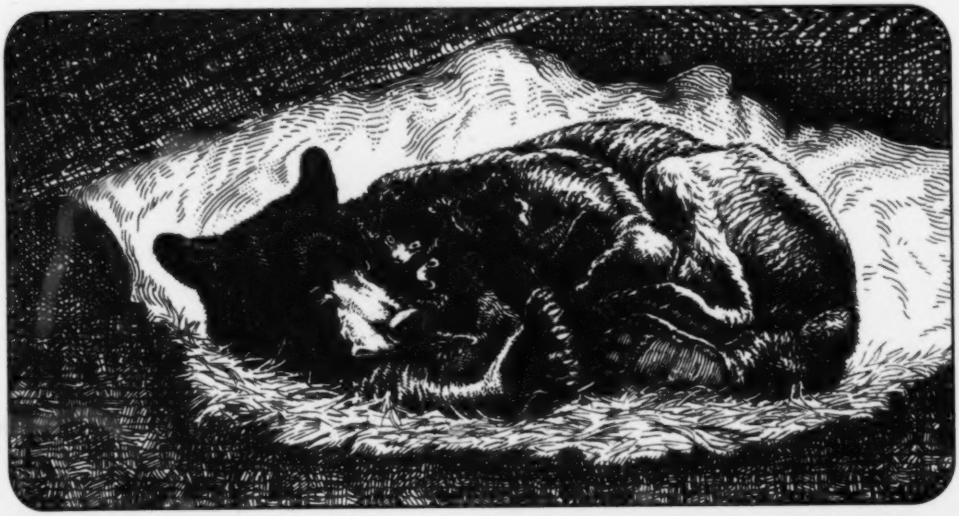
A reintroduction program was started in both Alberta and Saskatchewan, with the first swift foxes released in 1983. In Saskatchewan, swift foxes have been released along the Alberta border south of Cypress Hills and in the Grasslands National Park area. Releases continued until 1997 and may be resumed, depending upon results of a census planned for 2000/2001.

In winter of 1996/1997 there was an estimated Canadian population of about 300 foxes established in the wild. The population is reproducing and appears to be growing, but its status is still far from secure.

Swift foxes are found in the Prairie Ecozone.

Black Bear

(Ursus americanus)



Description

The black bear is a large, bulky animal: males can weigh over 200 kg and be more than 2 m in length. Even though this animal is called the black bear, its colouring may range from black to brown, cinnamon and even white. As well, a bear's colour can change over its lifetime. The majority of these bears, however, are black with a brown muzzle. Most black bears have a white patch on the chest which can be round or "V" shaped. Their ears are rounded and their eyes and tails are small.

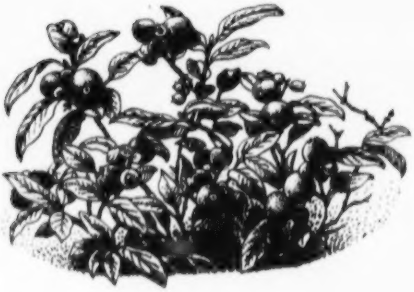
Habits

While the black bear breeds in late spring or early summer, scientists believe that the zygotes (fertilized eggs) do not start to develop until the female enters her winter den in mid-October. The young are born in the winter den in January or February. A typical litter size is 2–3, but as many as five have been observed. At birth, the bears weigh about 300 g and are 14–20 cm in length. The young grow quickly, and by June they are able to eat vegetation, run and climb trees.

Even though they can fend for themselves by six months of age, the cubs usually stay with their mother for at least a year. When they are about nine months old, they hibernate with her in the winter den. The following spring, when the cubs are ready to leave, the female breeds again. This is why black bears usually only have cubs every second year.

Food

Black bears are omnivores and eat almost anything. Plants make up a large part of their diet. Black bears dig up plant roots along waterways, climb aspen trees to eat the buds and leaves, and enjoy various berries and nuts. In the spring, they eat any carrion they can find, including that of fish, birds or animals.

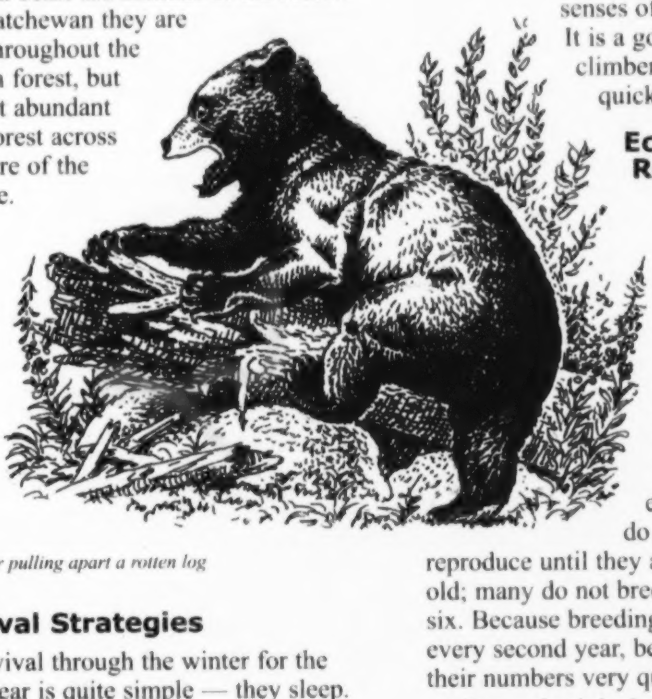


Blueberries, a black bear treat

Black bears eat bird eggs and young birds and mammals, including deer, elk and moose. They also eat insects, sometimes tearing apart ant hills or rotting logs.

Habitat

Black bears are animals of the forest. In Saskatchewan they are found throughout the northern forest, but are most abundant in the forest across the centre of the province.



Black bear pulling apart a rotten log

Quick Facts

- ✓ black to cinnamon to white in colour
- ✓ omnivore .
- ✓ forest habitat
- ✓ order Carnivora (flesh-eaters); family Ursidae (bears)
- ✓ common in Boreal Plain Ecozone

Survival Strategies

Survival through the winter for the black bear is quite simple — they sleep. They go into their underground dens in mid-October and come out in early April. They do not truly hibernate like some animals. Instead, they go into a "winter lethargy" or "winter sleep." In Saskatchewan, bears will sleep without eating or drinking for about six months. During this time, their heartbeat slows down, but their metabolism reduces only slightly and their body temperature remains about the same.

The black bear has keen senses of hearing and smell. It is a good swimmer and climber and can move very quickly if necessary.

Ecological Relationships

Black bears can live 25 years in the wild, although their usual lifespan is about 10 years. Their only enemies are humans, wolves and other bears.

Bears have evolved so that they do not mature or reproduce until they are least four years old; many do not breed until the age of six. Because breeding usually occurs every second year, bears cannot increase their numbers very quickly.

Some aboriginal peoples believed that when a warrior died his spirit became part of a bear. Therefore, they would not kill a bear. Others, out of respect for its strength, included bear parts in their religious ceremonies.

In Asia, many people believe that certain parts of the bear, such as the gall bladder, are powerful medicines.

In North America, many people enjoy just watching or photographing bears; others enjoy hunting them for their fur or meat.

There have been very few cases of bears attacking humans. Most bears avoid people if they can, although people and bears often meet at garbage dumps. Bears will defend their food, and this may trigger attacks.

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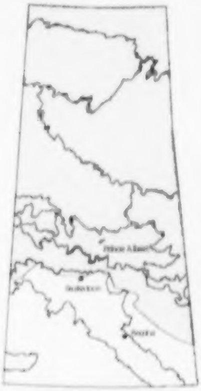


Status and Range

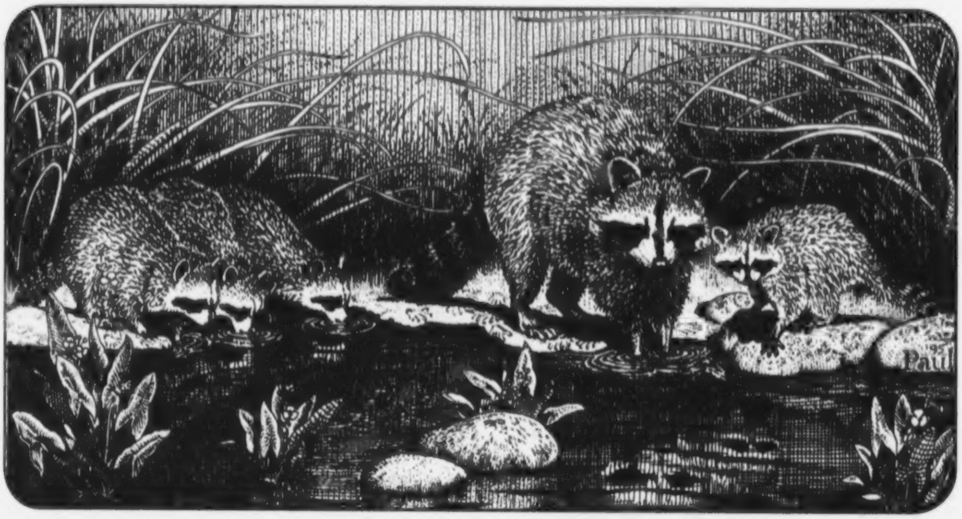
The bear population of Saskatchewan is in good condition. The number of black bears fluctuates up and down depending primarily on two things — the availability of fall food and human activity. As the best habitat for bears is in the forest and because some logging practices may even help bears by increasing food availability, their future survival looks secure.

Black bears are found throughout Saskatchewan's forests, but are most abundant within the Boreal Plain Ecozone. They often range south of this area into aspen groves in the Prairie Ecozone or north into the Boreal Shield and Taiga Shield ecozones.

Proper wildlife and forest management will help insure that black bears will always be here.

Raccoon

(Procyon lotor)



Description

The raccoon looks like a large, chubby cat with a pointed nose. Its most distinguishing features are its black mask and the 4–6 black rings on its tail. The raccoon has long, thick, brownish-grey fur. Its broad head ends in a slender muzzle, and it has rounded ears, black eyes and a round, black nose. Raccoons have short legs with five toes on each foot. The body of a raccoon averages about 90 cm in length, and its tail adds another 25 cm. The average weight of the female is 7.3 kg, while males average 8.2 kg.

Habits

Raccoons mate from January to June, although the peak period is in March. During the mating season, males go looking for females. When the female is ready, she chooses her mate and they spend a couple of weeks together in a den.

The average length of the gestation period (the time needed for the young to develop in the uterus) is 63 days. In Saskatchewan, most young raccoons are born in May. There may be from 1–6 kits in a litter, but the usual number is 3–4. At birth, the kits are covered with short, fuzzy, grey fur. They develop masks and tail rings when they are about 10 days old. Their eyes and ears are closed until about three weeks of age.

The female raises the young. She protects them and teaches them skills such as hunting, climbing and swimming. During the day, the mother stays with the kits in their warm, dry den. The den is hidden from view in a tree hollow, ground burrow, hollow log or cave. At night, the mother goes out to forage for food, but usually remains within hearing distance of the den. When the kits are about 6–8 weeks of age, they begin to accompany their mother on nightly excursions. The kits are weaned when they are between 2–4 months old. They remain with the mother in her den through their first winter and disperse in the spring.

Food

Raccoons are omnivores (that is, they eat both plant and animal materials), eating almost any food they find. They are nocturnal, usually foraging for food at night, although they have been known to be out during the day.

In the spring and summer, raccoons eat insects such as grasshoppers, earthworms and crickets. They also eat plants, fruits, nuts, mice, eggs, birds, frogs, small fish, turtles and snails.

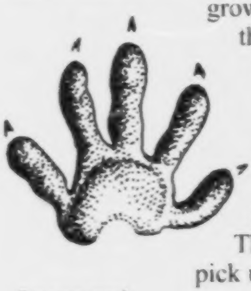
Habitat

Raccoons live in a variety of habitats including forests, prairies, farmland and cities, but they are always near water. On the prairies, most raccoons are found in wooded or wetland areas.

Survival Strategies

Raccoons are excellent climbers. Their tail helps them to balance when they walk and run along branches. By turning their back feet sideways to brace themselves, they are able to climb down head first. If they need to escape from a predator, raccoons usually climb a tree.

With their sharp teeth and claws, raccoons make fierce fighters. They also growl and puff up their fur to make themselves appear larger.



Raccoon track

Raccoons have good senses of hearing, smell and touch. They are able to pick up very small objects with their agile front paws. Their excellent night vision enables them to see in almost complete darkness.

Quick Facts

- ✓ black mask and ringed tail
- ✓ increasingly common
- ✓ intelligent, curious and agile
- ✓ order Carnivora (flesh-eaters); family Procyonidae (raccoons)
- ✓ most common in Prairie Ecozone

These animals are also very clever. Raccoons are able to learn new skills, such as how to eat new foods, and teach them to their young. This is one of the reasons why raccoons are one of the few medium-sized mammals able to adapt to living in urban environments.

Raccoons in Saskatchewan often sleep through much of the winter to conserve energy when there is little food available. Although they may stay in their dens for extended periods in cold weather, raccoons are not true hibernators because their temperature does not drop and their metabolism does not slow. They may leave their dens to forage for food on mild days.

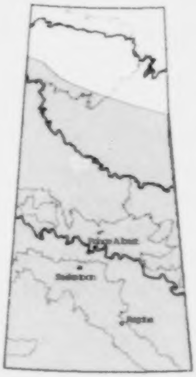
Ecological Relationships

Predators of the raccoon include cougars, bobcats, dogs, wolves, coyotes, foxes, fishers and great horned owls. Since adult raccoons are fierce fighters and able to escape quickly into trees, many of these predators are more successful at hunting young raccoons. Humans trap raccoons for their fur. In Sask-atchewan, about 3,000–4,000 raccoons are harvested per year.

Raccoons can deplete populations of water and upland birds. In areas where there are many raccoons, their tendency to eat eggs and destroy nests may cause a significant reduction in bird populations. Raccoons can also eat chickens and eggs on farms, and damage crops, gardens and buildings.

Raccoons are fascinating to watch, and sometimes it is tempting to adopt a young one as a pet. However, do not keep raccoons as pets or encourage them to visit your yard, for the health consequences could be serious, even deadly. The raccoon roundworm (*Baylisascaris procyonis*) occurs in many areas of North America, including Saskatchewan. Its eggs are shed in raccoon faeces, and remain viable for many months or even, perhaps, years. Invisible to the naked eye, the sticky eggs readily adhere to hands or clothing. When a person accidentally swallows these eggs, they soon hatch into larvae. Serious illness or even death may result from effects caused by larvae migrating through the body. At present there is no effective treatment, so it is important to prevent infection from occurring. Practising good personal hygiene (for example, washing your hands) or staying away from places frequented by raccoons lessen the risk of infection.

Though individual raccoons are not greatly affected by these parasites, the potential impact on human health is far more serious. All raccoons — both tame and wild — may harbour the raccoon roundworm in their small intestine.



Status and Range

Once fairly rare in Saskatchewan, the number of raccoons and their range have increased.

Raccoons are now found in all the ecozones in Saskatchewan except the Taiga Shield. They are most common in the Prairie Ecozone and in some southern areas of the Boreal Plain Ecozone. In the rest of the Boreal Plain and in the Boreal Shield ecozones they are less numerous.

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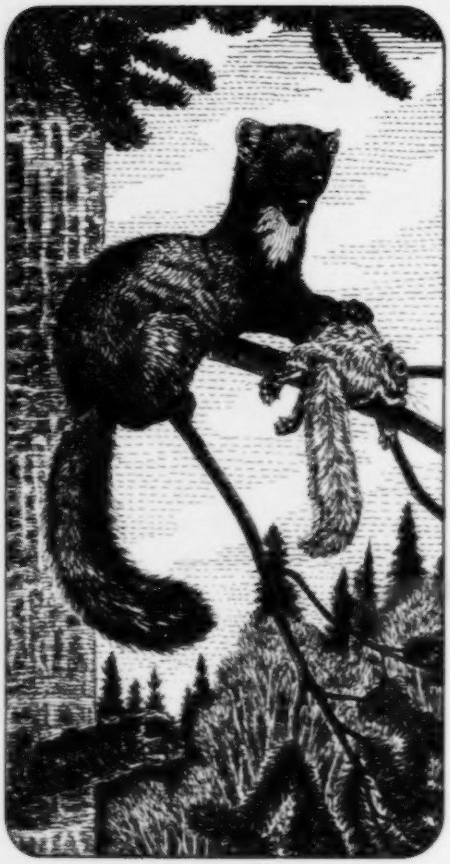
Marten

(Martes americana)



Description

The marten is about the size of a house cat. It looks quite similar to its relative the fisher. Like other members of the weasel family, martens have a long, slender body with short legs, a small head with rounded ears and a long, bushy tail. Marten fur is light to dark brown or reddish in colour. Its stomach fur is lighter in colour than that on its back. There is often a light or orange-coloured patch on its throat and chest. Its head is lighter in colour than the rest of its body; its ears have white edging. Males are larger than females at about 50–63 cm in length.

Habits

Martens live alone, except during the mating season in July and August. Young martens first mate at two years of age. Males are polygamous, which means they mate with several partners. Although they breed in July and August, the kits are not born until the following March or April.

One of the favourite places for a den is in a tree cavity. Here, the female gives birth to 1–7 kits. The young are covered with yellowish hair and have closed eyes which open at five weeks of age. At seven weeks, the kits are weaned. By 3–5 months, they have grown to the size of an adult and leave their mother to live alone.

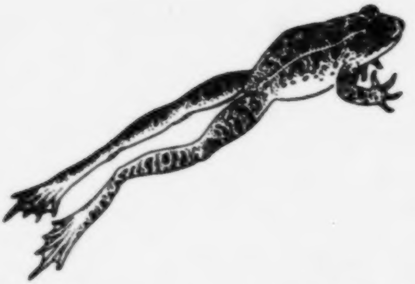
Martens are nocturnal and are also active at dawn and at dusk. They do not hibernate, but instead stay active throughout the winter.

Food

The diet is extremely varied. It includes birds, eggs, mice, squirrels, voles, chipmunks, rabbits, carrion, fish, amphibians, reptiles, insects, berries and fruit.

Habitat

The marten is a species of mature coniferous forest. If their habitat has been lost, they have shown signs of



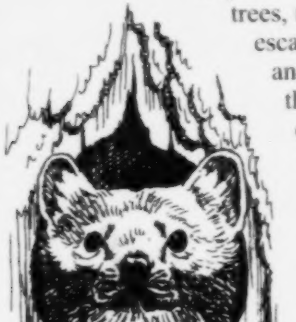
Northern leopard frog, a possible meal for the marten

being able to adapt to other areas. Recently they have been seen in mixed forests and around dumps.

Survival Strategies

Martens have excellent senses of smell, sight and hearing. They have quick reflexes and are ferocious. They can defend themselves well, often against large predators.

The marten is an agile and skilled tree climber. Its long tail helps it to keep its balance. Claws and furry, padded feet help it to climb. In the trees, martens can escape predators and find food that they otherwise could not reach from the ground.



Marten in tree trunk

Martens are very thorough in their search for prey and criss-cross back and forth checking everything for any signs of food. In the winter, they even tunnel under the snow to search for prey there.

Quick Facts

- ✓ short legged, house cat-sized
- ✓ tree climber
- ✓ sometimes called "pine marten"
- ✓ order Carnivora (flesh-eaters); family Mustelidae (weasels)
- ✓ primarily Boreal Plain, Boreal Shield and Taiga Shield ecozones

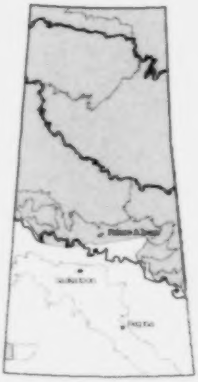
Ecological Relationships

Humans are the main predator of the marten. Other predators include lynx, red fox, fishers, wolves, wolverines, bears, coyotes, cougars, hawks, owls and eagles.

If something should cause the marten population to decline, it will be slow to rebound. Because members of this species do not breed until two years of age, a first litter is not produced until the parent is three years old. Martens only live about 8–10 years in the wild.

The marten has always been popular for its fur, which is called sable by the fur industry. Because it is a very curious animal, it is easily caught in traps. In the 1800s and early 1900s — prior to regulated trapping — the demand for sable led to overtrapping of this species.

In Canada, the marten population has declined or been extirpated (eliminated in part of its range) in many areas. In the United States, martens are now rare over much of their historical range. These decreases have been caused by overtrapping and habitat loss from logging and development. The continued survival of the marten is dependent upon proper management of its ecosystem.



Status and Range

Martens were once common throughout the boreal coniferous forests of northern Saskatchewan, but due to loss of habitat and overtrapping, their numbers have declined. After many years of absence from all but the far north, martens are now beginning to re-establish themselves.

They continue to thrive in the far north, but their survival elsewhere is uncertain. Because of a reintroduction program in the 1980s, a small population has become established in Cypress Hills Provincial Park. Thirty-two martens were released in the West Block of the park on June 23, 1986. Since then, there have been a few reports of marten sightings and activity.

Martens are most common in the Boreal Plain, Boreal Shield and Taiga Shield ecozones. Those living within Cypress Hills Provincial Park are within the Prairie Ecozone.

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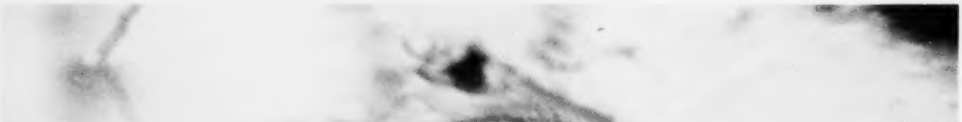
Red squirrel (*Tamiasciurus hudsonicus*)



Muskrat (*Ondatra zibethicus*)

Porcupine (*Erethizon dorsatum*)

Coyote (*Canis latrans*)

Wolf (*Canis lupus*)

Swift fox (*Vulpes velox*)

Raccoon (*Procyon lotor*)

Marten (*Martes americana*)

Wolverine (*Gulo gulo*)

Badger (*Taxidea taxus*)

Striped skunk (*Mephitis mephitis*)

Cougar (*Puma concolor*)

Lynx (*Lynx canadensis*)

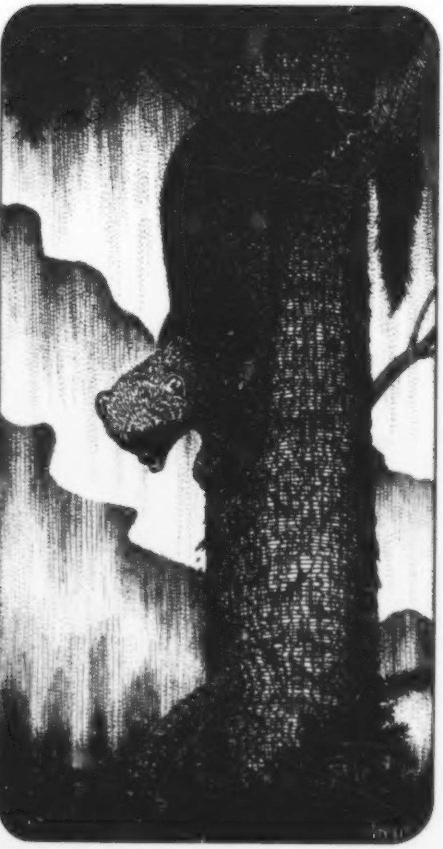
Moose (*Alces alces*)

Elk (*Cervus elaphus*)

Bison (*Bos bison bison*)

Fisher

(Martes pennanti)



Description

The fisher is larger than a marten, but smaller than an otter. It is the third largest member of the weasel family. Fishers share many characteristics with other members of that family: a long, slender body with short legs, a small head with a pointed face and round ears and a long, bushy tail. The fisher's beauiful fur coat varies in colour from grey o dark brown to black. Its head and shoulders are lighter than the rest of its body. Its tail, nose and feet are black. The female fisher is smaller than the male.

Habits

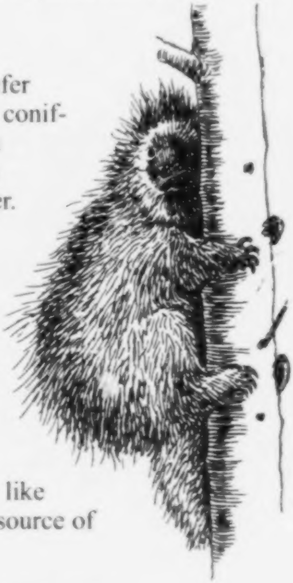
Fishers generally live by themselves, except during mating season. Mating occurs in March or April and the young are born the following March or April. Although the fisher first breeds at one year of age, it produces its first litter at two years of age. The mother finds a den in a hole in a tree, hollow log, rock crevice, under rocks or brush or in a burrow. She gives birth to 1–5 young, born blind, helpless and with only a little fur. At seven weeks, their eyes open, and soon after, their mother starts teaching them to hunt. Although at seven weeks they are beginning to eat meat, their mother continues nursing them until they are about four months old. The young disperse in the fall to take up the solitary life of an adult fisher. The average lifespan is 6–8 years, although fishers may live as long as 14 years.

Food

The fisher is famous for being one of the few animals able to eat porcupines. To avoid the dangerous quills, the fisher attacks the porcupine's face or flips it over onto its back to attack the stomach. Snowshoe hares make up a large part of the diet. In addition, fishers eat a variety of other foods including squirrels, mice, shrews, mink, muskrats, voles, birds such as the blue jay and ruffed grouse, frogs, carrion, fern tips, berries and nuts. Fishers have even been known to attack foxes, raccoons and deer.

The porcupine, prey to the fisher (one of its few predators)

COURTESY THE ROYAL SASKATCHEWAN MUSEUM



Habitat

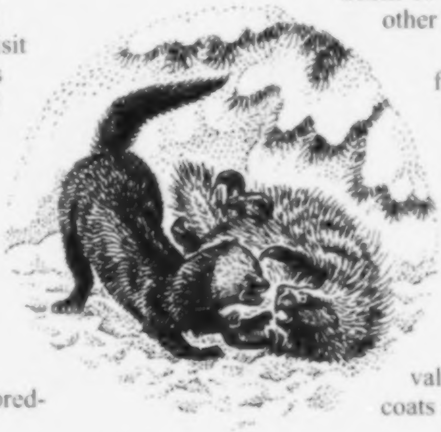
Fishers prefer dense, mature coniferous forest in which there is overhead cover. There they find food, den cover and hiding places. They also inhabit mixed forests, swamps and burns. Fishers like to live near a source of water.

Survival Strategies

Fisher remain active throughout the winter. They are well adapted to survive Saskatchewan's cold weather. Thick fur keeps them warm. During winter storms, fishers crawl into a den, such as a cavity under the snow, to protect themselves from the wind and cold.

Fishers cache (hide) uneaten food. They revisit caches when new meals are hard to find. If food is scarce, they will travel outside their usual home range to find a meal.

Like martens, fishers are good tree climbers. Dens in tree cavities keep their young warm and safe from ground-dwelling predators.



Fisher attacking porcupine

Quick Facts

- ✓ similar to marten, but bigger
- ✓ often eat porcupines
- ✓ mature coniferous forest
- ✓ order Carnivora (flesh-eaters); family Mustelidae (weasels)
- ✓ Boreal Plain, Boreal Shield and Taiga Shield ecozones

Fishers have scent glands which the use to mark their territory. If threatened fisher scream or hiss loudly and produce a unpleasant odour to frighten off intruders.

Ecological Relationships

Fishers have few predators other than humans. However, it is believed that the may be preyed upon by hawks, great horned owls, bobcats, lynx, black bears and dogs.

As one of the few predators that eats porcupines, fishers help to keep this rodent's population in balance. Fishers also help keep small mammal populations from growing too large.

Fishers have trouble traveling across deep, soft snow. They will walk in the tracks of snowshoe hares or other fishers to save energy.

By the 1900s, logging fire, trapping, human development and the use of strychnine had decreased the numbe of fishers. Sometime fishers were completely eliminated from parts of their former range.

Fisher fur is highly valued for making fur coats and other garments.

When abundant, fishers provide an important source of income for northern trappers. Because they are so curious, these members of the weasel family are easily caught in traps.

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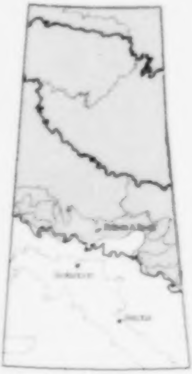


Status and Range

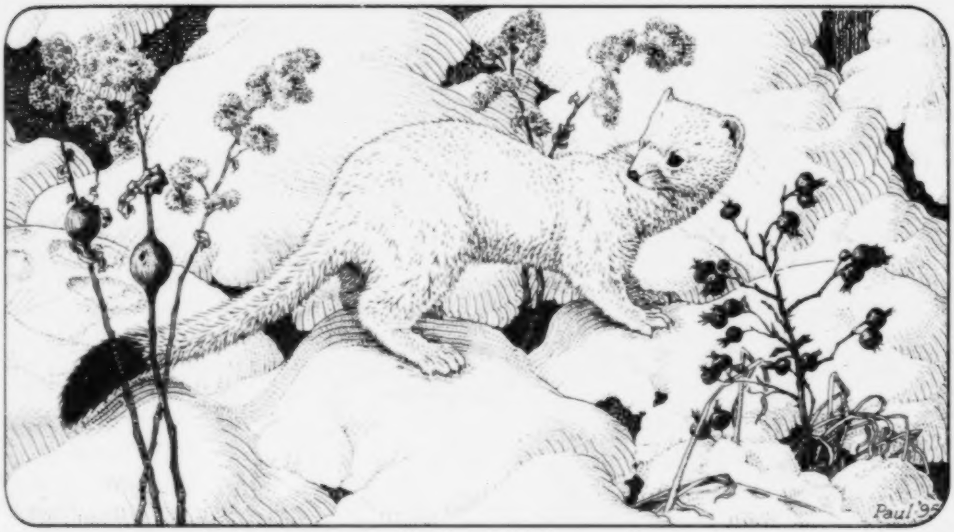
Fishers are found only in North America. In Saskatchewan, they are mainly found in the Boreal Plain and Boreal Shield ecozones. They are less numerous in the Taiga Shield in the far north of the province.

Fishers have been trapped as far south as Turtleford, Prince Albert, Preeceville and Kamsack.

After being low for many years, the fisher population in Saskatchewan increased dramatically in the 1980s. At that time fishers returned to many areas from which they had disappeared.

Long-tailed Weasel

(Mustela frenata)



Description

The long-tailed weasel is the largest of the three weasels found in Saskatchewan. Females are 28–35 cm long and weigh 80–250 g; males are 22–42 cm long and weigh 160–450 g. The long, black-tipped tail of this weasel makes up a third to a half of the animal's total length. Its muscular body is slender, with a long neck, a small, tapered head and short legs.

The long-tailed weasel has both summer and winter colours. In April, this species begins to moult, becoming light brown on its back and yellowish on its chest, belly and front paws. Its belly is the last part to change colour. In October or November, this weasel moults again. First its belly turns white, and then the rest of its coat turns white, except for the black tip of its tail.

Habits

Long-tailed weasels mate between July and August. The female gives birth much later, in April or May, following delayed implantation and gestation. "Delayed implantation" means that development of a newly fertilized egg into an embryo greatly slows or stops for a period of time.

Researchers do not know whether the father helps raise the young.

The mother often uses the burrow of a prey species as her nesting den, but she may also den in a tree cavity, log, stump, under a building or in a rock crevice. She uses soft plants and fur from her prey to line the nest.

Usually 4–5 young are born. Newborn kits are blind and have some fur. At first they grow coats of stiff white fur, but this is replaced by their adult coat after 3–4 weeks. By then, they also have teeth and begin to eat meat. After their eyes open at five weeks, the kits grow rapidly. They are weaned by 5–6 weeks. At 6–7 weeks, the kits learn to hunt with their mother. Young weasels leave their parent(s) at 11–12 weeks, when they have their permanent teeth.

The long-tailed weasel is alert and agile and travels with a fast, bounding gait. It is able to climb trees.

Food

Small mammals such as mice, rats, shrews, voles, ground squirrels, chipmunks, rabbits and hares make up most of the diet. In addition, they eat small birds, eggs, insects, frogs, bats and berries.

Habitat

The preferred habitat of the long-tailed weasel is a mix of prairie and aspen groves. Here, they are found around wetlands and river banks, in grasslands, cultivated fields, roadsides, farmyards, open aspen forests and at the edge of boreal forests.

For their population to remain stable, weasels require a constant supply of water and a variety of prey. Ground cover such as tall grass, forbs, shrubs, trees or rock piles are also important.

Quick Facts

- ✓ long, slender body
- ✓ quick and agile
- ✓ aspen-prairie habitat
- ✓ order Carnivora (flesh-eaters); family Mustelidae (weasels)
- ✓ Prairie and southern Boreal Plain ecozones

Survival Strategies

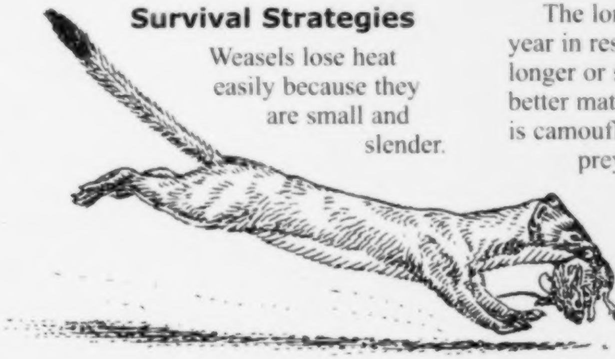
Weasels lose heat easily because they are small and slender. They must eat a lot to stay warm.

Fortunately for the long-tailed weasel, it is a fearless and strong hunter. It can kill animals much larger than itself, even ones as big as a snowshoe hare. Long-tailed weasels have good senses of hearing, sight and smell. They can track prey over long distances by scent. They have strong jaws and very sharp teeth, which they use to bring down prey by biting the back of the neck near the backbone. Weasels sometimes wrap their long bodies around their prey, holding it so that it cannot escape.

Weasels usually hunt at night. As they travel, they stop to check every hollow and cranny. Their short legs and slender build enable them to investigate burrows as they search for prey. Weasels tend to hunt whenever they can and bury extra food in a storeroom within their den.

The long-tailed weasel moults twice a year in response to the days getting longer or shorter. By changing colour to better match its surroundings, the weasel is camouflaged from both predators and prey.

Long-tailed weasels have a black tip on the end of their tails, which may help to confuse would-be predators. Some researchers believe that raptors (birds of prey)



Long-tailed weasel bounding, with mouse may mistake the black-tipped tail for the weasel's head. That is good for the weasel, for it is more likely to recover from an injured tail than from an injured head.

Long-tailed weasels have a gland at the base of the tail that produces a strong smelling musk. They use musk to mark their territories and to deter predators.

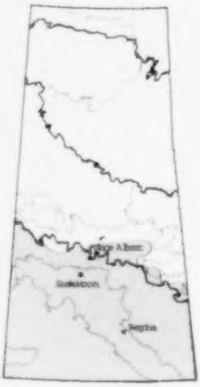
Ecological Relationships

Little is known about this species' social interactions. They seem to be more social in places where there is abundant food and good habitat, but more solitary where food and habitat are limited.

Weasels play an important role in controlling numbers of small mammals that eat crops and damage buildings. Weasels sometimes prey on farm birds such as chickens. In turn, long-tailed weasels are themselves hunted by hawks, owls, eagles, red foxes, mink, coyotes, bobcats, lynx, martens, cats and some snakes. Humans also trap them for their winter pelts.

Long-tailed weasels were poisoned by certain herbicides and pesticides in the 1950s and 1960s. Although use of these chemicals was banned in the late 1960s, researchers in the 1980s were still finding evidence of contamination in long-tailed weasel carcasses.

This species can be helped by preserving undisturbed wooded areas in agricultural regions. Shelterbelts, wetlands, sloughs, hedgerows and rock piles all provide cover and improve habitat for weasels.



Status and Range

The long-tailed weasel population has decreased dramatically in the last 50 years due to habitat loss. In Saskatchewan, the majority of the aspen-prairie is being farmed and wetlands have been drained.

Records from the Hudson's Bay Company show that in the 1930s between 60,000– 70,000 long-tailed weasels were trapped in Saskatchewan each year. Today, less than 1,500 are taken annually.

The long-tailed weasel is found in the Prairie Ecozone and in some southern areas of the Boreal Plain Ecozone. Its population density is unknown, in part, because the long-tailed weasel is challenging to count.

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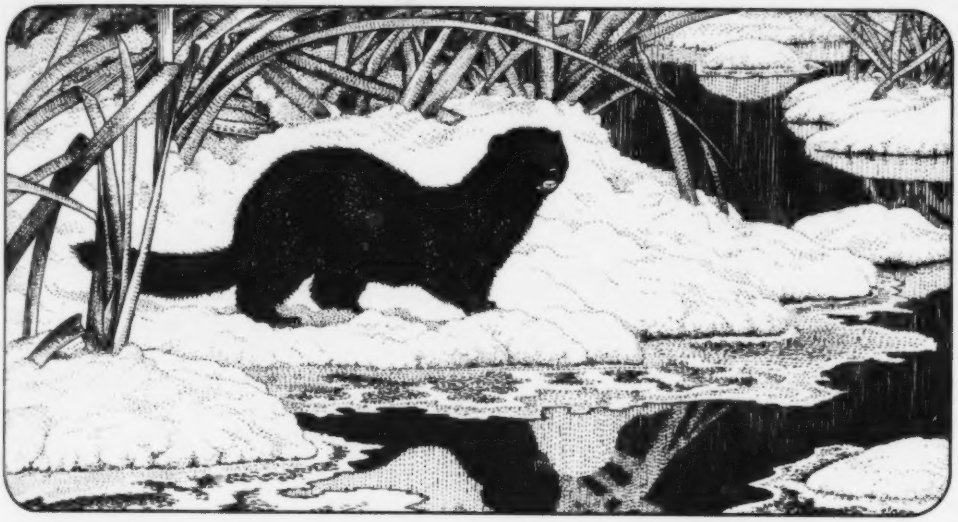
Mink

(Mustela vison)



Description

Mink have long, thin bodies with short legs and somewhat bushy tails. Their small heads have pointed muzzles and small, rounded ears. Mink range in colour from chestnut brown to almost black, with stomachs that are slightly lighter in colour. Their thick, shiny coats are made up of a dense greyish-brown underfur and long, shiny guard hairs. Mink usually have a white patch on their chin; some mink have white patches on their chests or abdomens as well.

Mink range in length between 49–92 cm and weigh from 0.7–2 kg. Males tend to weigh quite a bit more than females.

Habits

Members of this species live solitary lives but do come together to mate between late February and early April.

The gestation period ranges in length from 40–79 days. The reason there is such a wide range in the time of gestation is because mink experience delayed implantation between 10–45 days in length. "Delayed implantation" means that the development of a newly fertilized egg into an embryo greatly slows or stops for a period of time.

Once the fertilized eggs implant in the wall of the uterus, a more typical rate of development resumes. Kits are born 28–30 days after implantation occurs. From 1–10 tiny, blind, deaf kits may be born, but the average litter is 4–5. Their pink, wrinkled skin is covered by a bit of white fur.

The kits' eyes open between 3–5 weeks. They are very playful and spend much time wrestling, chasing, nipping and squealing. At about five weeks, the mother begins to wean them. By six weeks, the kits are eating meat.

Between 6–8 weeks they are old enough to follow their mother on hunting trips.

Kits are usually self-sufficient by two months of age. Most leave their mother in late July or early September, although some small female kits may wait until the following spring before dispersing.

Many researchers believe that kits are raised by their mothers. There have, however, been reports of fathers helping to feed and rear their young, as well as guiding them on hunting trips.

Food

Mink are carnivores that hunt on land and in water. They eat many small mammals including hares, rabbits, chipmunks, muskrats, voles, shrews and mice. They also eat fish, crayfish, frogs, insects, earthworms, eggs, small birds and even bats, if available.

Habitat

Mink are semi-aquatic mammals and live close to wetlands. They are found near marshes, ponds, ditches, swamps, rivers, streams and lakes.

Mink require sufficient denning sites in the areas in which they live. They often den in riverbank burrows built by other animals such as muskrats. Rock or log piles, cavities under tree roots, beaver lodges and hollow stumps and logs are also used as denning sites.

Survival Strategies

Mink have partially webbed hind feet which help them to swim. Their dense fur helps to waterproof them. The graceful mink is a good swimmer and diver. Most dives underwater are short, lasting only about 5–20 seconds.

Mink are unable to see well underwater, so they watch for prey on the shore and then dive after it, grabbing it with their teeth.

Quick Facts

- ✓ brown weasel-like animal
- ✓ semi-aquatic
- ✓ common
- ✓ order Carnivora (flesh-eaters); family Mustelidae (weasels)
- ✓ Prairie, Boreal Plain, Boreal Shield and Taiga Shield ecozones

The mink is an agile and ferocious fighter which is often able to escape its enemies by using its sharp teeth and claws. Like all members of the weasel family, mink have anal musk glands which give off an offensive, smelly liquid when the animal is excited. These musk glands are used in defence, to mark territories and to attract mates.

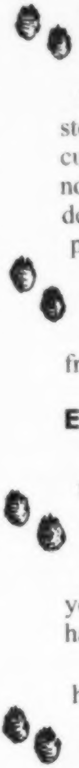
Deep snow makes travel difficult for this short-legged mammal. During storms or very cold weather, the mink curls up in its den with its tail over its nose and sleeps for days. It leaves the den when hungry to hunt or to find a previously hidden cache of food.

Mink remain brown all year long, so they stay close to vegetation when outside in the winter in order to hide from predators.

Ecological Relationships

Humans are the main predators of mink. Mink pelts are used to make coats, jackets, stoles and trim. In Saskatchewan, about 10,000–20,000 mink are trapped each year. In recent years, trapping has decreased as people have started raising mink on ranches.

Other predators include the great horned owl, bobcat, red fox, coyote, wolf, lynx, dog, other mink and, sometimes, the black bear. Mink themselves



Mink tracks

can be major predators of waterfowl and nesting colonies of shorebirds. Mink can seriously endanger local populations of these birds.

Wetland drainage, drought, flooding and human development along shorelines can decrease the reproductive success of local mink populations.

As carnivores, mink are high on the food web and, thus, may be greatly affected by environmental pollutants. For example, if they eat fish contaminated with chemicals such as pesticides, mercury or PCBs, these pollutants may become concentrated in their tissues. Reproductive failure, or even death, can result.

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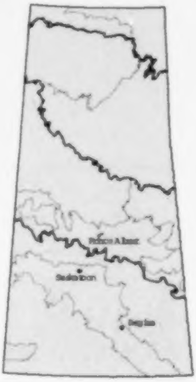


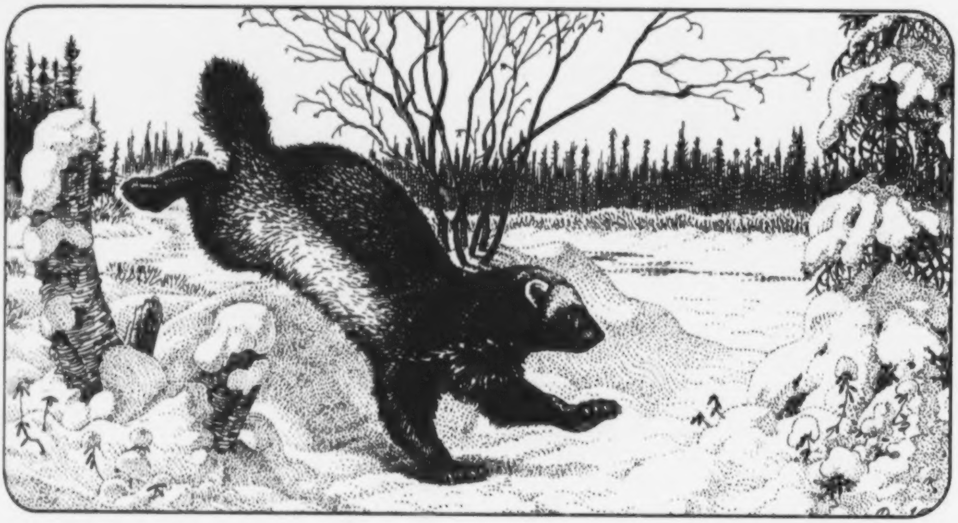
Status and Range

Mink are found throughout the province. They are most abundant in the Boreal Plain Ecozone. Mink are less abundant, but are still common, in the remaining ecozones within Saskatchewan (Prairie, Boreal Shield and Taiga Shield).

Although mink have suffered some habitat loss in southern Saskatchewan due to agricultural activity, the mink population is believed to be stable in this province.

Wolverine

(Gulo gulo)



Description

Except for its long, bushy tail, the wolverine looks like a small bear. In colour, it is dark brown with a paler head and a wide, yellowish stripe on each side that starts at the shoulder and meets at the base of the tail. Wolverines are about 100 cm long, including a 22 cm long tail, and weigh 10–15 kg. Females are generally smaller than males.

One of the largest members of the weasel family, the wolverine has large paws and a broad head. Compared to most members of the weasel family, wolverines have relatively long legs.

Habits

Wolverines are active year round. They live alone and travel very long distances in search of food. They associate with other wolverines only during mating season, which occurs from late April to early September. Females mate for the first time at one year of age.

In late March or early April, the female gives birth to 1–4 young which have fuzzy white fur, no teeth and whose eyes are closed. Snow-covered tree roots, abandoned burrows, cavities in rocks or tunnels under the snow are some of the places the mother might choose as a natal den site. The young are weaned at 8–9 weeks. At 12–14 weeks they leave the den, although they may remain with the mother for up to a year before dispersing.

Food

Wolverines are opportunistic feeders, which means that they eat almost anything they come across. Primarily they are scavengers and eat carcasses left behind by other predators, although they infrequently kill large prey such as caribou.

They also eat birds' eggs, insect larvae, berries, roots, fish and mammals ranging in size from mice to deer. Wolverines are omnivorous.

Habitat

The wolverine appears to have once ranged over a variety of habitats, but they are now found primarily in the boreal forest and on the tundra in the north. Some can be found high in the Rocky Mountains on the alpine tundra. They inhabit areas far away from human activity.

Survival Strategies

The wolverine is able to use its keen sense of smell to find its food. A strong and ferocious animal, the wolverine is able to kill prey or defend itself from animals many times its own size.

The wolverine stores extra food in caches in trees or under the snow. It uses its scent gland to mark the food to discourage intruders.

Wolverines can travel tirelessly throughout their home range. Their home ranges are huge: about 400–700 km^2 for males and 100–400 km^2 for females. They do not move quickly but meander along for hours, sometimes stopping to take short naps. Their large feet and wide-spreading toes help them to travel over rough ground and snow. As well, the wolverine is an excellent climber and swimmer.

Ecological Relationships

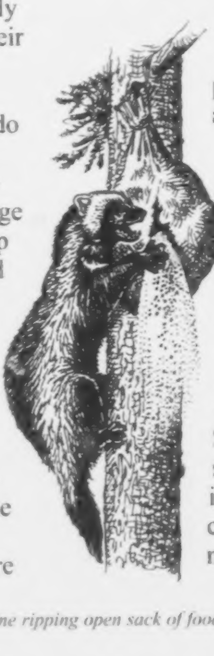
Wolverines rely on carcasses left by large predators such as the wolf and the bear. These large members of the weasel family are part of nature's "clean-up crew." They consume food left by other predators, sometimes leaving behind uneaten, fragmented parts of a carcass. By doing so wolverines unintentionally benefit less powerful and often smaller scavengers by providing smaller, more edible pieces of carrion.

Quick Facts

- ✓ yellowish stripes on sides
- ✓ solitary; large home range
- ✓ rare
- ✓ order Carnivora (flesh-eaters); family Mustelidae (weasels)
- ✓ Boreal Plain, Boreal Shield and Taiga Shield ecozones

Adult wolverines have few enemies other than humans, although they may succumb to attacks by wolves, bears or even other wolverines. While a pack of wolves or a bear may attack an individual wolverine, these predators do benefit the wolverine species. Wolves, bears and other predators provide the carrion that forms such an important part of this mustelid's diet.

Various factors have been suggested as the cause for the wolverine's reduced range. First of all, wolverines appear to rely on large populations of ungulates for food. In the late 1800s and early 1900s, however, the large hoofed mammals such as bison all but disappeared from southern Saskatchewan due to hunting pressure and loss of habitat. Secondly, in the 1950s and 1960s, there were campaigns to poison the wolf in a misguided effort to save the moose.



Wolverine ripping open sack of foodstuffs in tree

Many wolverine were also poisoned during these campaigns. Lastly, the wolverine seems to prefer areas that are far from human activities, so as the south was settled, it is believed that the wolverine moved farther north.

Because wolverine fur resists frost, it is sought after for trim on parka hoods, cuffs and collars. Although wolverine are trapped in Saskatchewan, only about 10–30 are taken each year.

Some people consider the wolverine to be a pest because it sometimes raids traps and human food caches. It has been known to spoil food and traps with its skunk-like spray.

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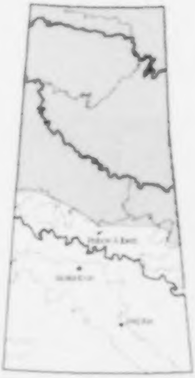


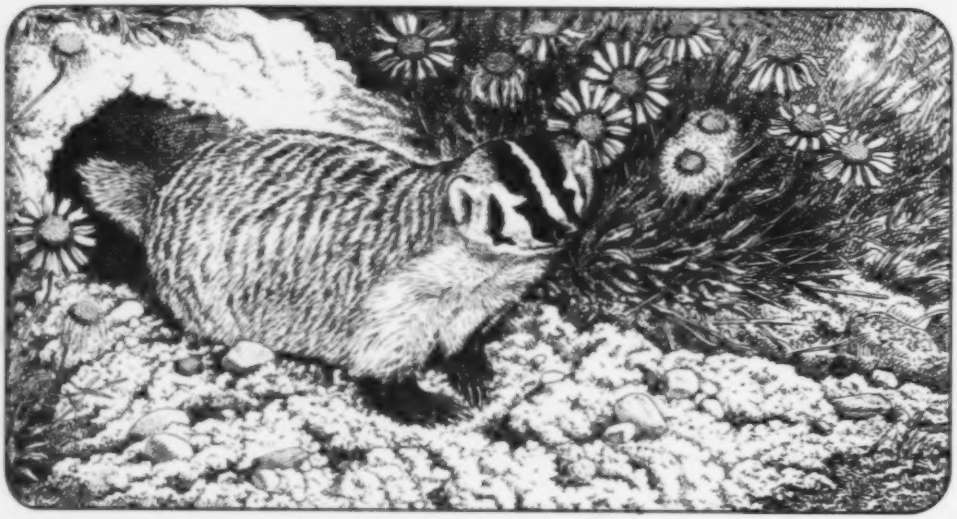
Status and Range

In Saskatchewan, wolverines are now found in the northern half of the province in the Boreal Plain, Boreal Shield and Taiga Shield ecozones. At one time they occupied all of the province, but have since retreated to the more remote north.

The status of the wolverine is not known, but it is believed to be rare with a stable population.

Badger

(Taxidea taxus)



Description

The badger has a broad head and body, a thick neck and short, strong legs. The badger is often described as looking as though something flattened it. Each of its paws has five partly webbed toes with long, thick claws; in fact, the claws on its front feet may be as long as 5 cm. Badgers have loose, tough skin. Their underparts are light grey or beige in colour and their legs and feet are black. The long, shaggy fur on their backs and the shorter fur on their heads varies from grizzled grey to yellowish brown. Badgers have a white or beige stripe that starts just above the nose and runs up the middle of the forehead. On some badgers, this stripe ends at the top of the head, but on others, it extends to the neck or even onto the back. Badgers also have white ears trimmed with black, and white cheeks.

Badgers are about 66–89 cm in length and weigh 6–13 kg.

Habits

Badgers are solitary and secretive animals but come together to mate between July and September. There is a long delay before the embryo begins to develop. In January or February, the embryo becomes implanted in the uterine wall and begins to grow. The young are born between March and May. Their nest is a large chamber dug by their mother. Badger litters range in size from 1–5. The newborns are blind and covered with short, soft hair. They are helpless and are primarily cared for by their mother until they are ready to be on their own. Their eyes open at 4–6 weeks. Their mother nurses them for 6–9 weeks and supplements their diet with meat she has hunted.

Young badgers are very playful and can sometimes be seen playing at the mouth of their burrow. When old enough to leave the den, they learn to hunt with their mother.

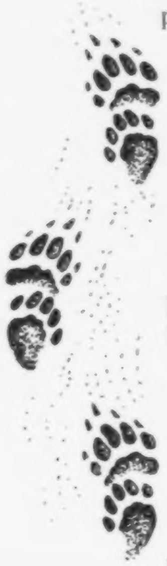
Food

Badgers are opportunistic eaters, which means that they eat a wide variety of foods depending upon what they can find. Their diet includes small mammals, birds, eggs, amphibians, reptiles, insects, carrion and even plants. Badgers are nocturnal and usually hunt at night.

Habitat

Badgers live in a variety of habitats, including prairies, desert, farmland and immature, open forest. They seem to prefer dry, open areas with clay-like or sandy soil. Such areas are suitable for digging and often have many ground-dwelling prey.

Survival Strategies



Badger tracks

Badgers are excellent diggers. They use their long front claws to dig and their hind legs to shovel dirt out of the way. The partial webbing between their toes serves to make their feet stronger for digging. Their small eyes are covered by a membrane that protects them from dirt. This digging skill serves badgers in many ways. First of all, badgers build burrows or setts that they use for shelter. Their setts are large and can be recognized by the big mound of dirt beside the entrance. Badgers often dig when hunting. They tunnel down to the dens of small burrowing animals such as ground squirrels. Their strong senses of smell and hearing help them to locate animals. Sometimes, badgers block the exits with soil so that their prey has less chance of escaping. Badgers also dig underground to escape predators and are able to tunnel out of sight in a minute.

Quick Facts

- ✓ open, dry habitat
- ✓ common
- ✓ powerful digger
- ✓ order Carnivora (flesh-eaters); family Mustelidae (weasels)
- ✓ Prairie and southern Boreal Plain ecozones

Badgers store up body fat in the late summer and fall. In the winter, they go into a deep sleep in their dens, but they are not true hibernators. When the weather is mild, they may wake and leave their dens to search for food.

Although badgers prefer to escape from danger, they are ferocious and powerful fighters if cornered. Most animals leave them alone as they have a reputation of being able to fight animals much larger than themselves. If challenged and unable to escape, badgers snarl and bare their teeth. They can use their strong jaws and sharp teeth and claws to their advantage.

Badgers have scent glands on their belly and at the base of their tails. Although they are unable to spray like the skunk, badgers are able to release a strong, unpleasant odour when they raise their tails.

Ecological Relationships

Badgers have few enemies other than humans. They have often been persecuted due to their ferocious reputations. Many landowners also find them annoying because they are constantly digging. Their burrows and the accompanying mounds of dirt may damage farm machinery and hurt livestock that may step into the holes.

Badgers have suffered from habitat loss due to cultivation of the prairies. As well, humans often exterminate small mammals such as mice, which the badger eats. Badgers may be unintentionally poisoned if they eat prey that have been killed with chemicals. Many badgers are killed by automobiles at night.

Humans hunt badgers and use their fur as rugs and as trim on coats. Badger fur is also used to make paint and shaving brushes. The badger trapping season runs from November to April each year. In Saskatchewan, about 1,000–2,500 badgers are harvested each season.

The relationship between the badger and the coyote is not well understood, but it is known that coyotes sometimes follow badgers. The coyote waits while the badger digs down into an animal den and catches any animals missed by the badger.

Badger burrows provide essential shelter for many wildlife species that are less capable diggers. For example, burrowing owls, rabbits, snakes and toads use badger burrows. Digging by badgers loosens hard-packed soil and brings nutrients to the surface which aids the growth of certain plants. Badgers also play an important role in keeping the numbers of small mammals in balance.

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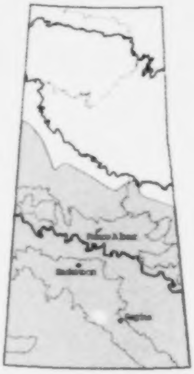


Status and Range

Badgers are common to abundant in southern and central Saskatchewan. They are found in the Prairie Ecozone, as well as in parts of the southern Boreal Plain Ecozone. Elsewhere in the Boreal Plain Ecozone, they are rare or absent.

As badgers eat many different foods and seem to be able to adapt somewhat to human-influenced environments, their population appears to be stable in the province.

Striped Skunk

(Mephitis mephitis)

Description

The striped skunk is easily recognized, with its long, black fur and characteristic white markings. On its face is a narrow white stripe that runs from nose to forehead. The top of the head is white, and two white stripes run along its back to the base of the tail. The long, bushy tail may be all black or both black and white.

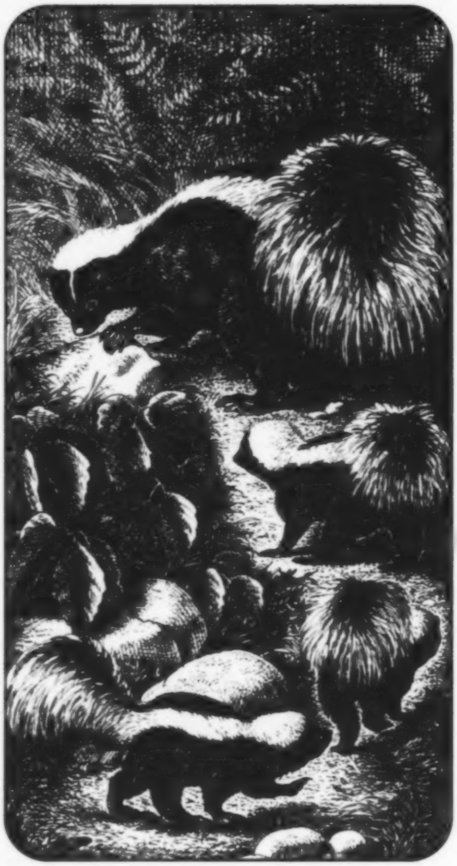
The striped skunk is about the size of a short-legged house cat. Its small head has a pointed snout and small, pointed ears. These skunks range in weight from 1.8–4.5 kg. In length, they range from 50–70 cm, including the tail. Males tend to be slightly larger than females.

Habits

Striped skunks mate when they come out of their winter dens in mid-February and March. Males are polygamous (mate with more than one female). Once a female has mated, however, she will not let another male mate with her.

The gestation period (time needed for the young to develop in the uterus) is 59–77 days. The young are born in May or June and are raised by the female. Skunks have large litters, usually 5–9 young, but as many as 16 is possible.

Newborn skunks are blind and helpless. They are almost naked, but the fur pattern of the adult skunk can be seen. They are fully furred by about 13 days of age. Their eyes open in 2–4 weeks, and by one month of age, they are already able to spray their bad-smelling musk. Young skunks are weaned between 6–8 weeks. At seven weeks, they begin travelling with their mother and learning to find food. Between August and November, skunks begin searching for a winter den. The young leave their mother to find a den of their own.



Skunks seldom live longer than three years in the wild, about one-third of their potential lifespan in captivity.

Food

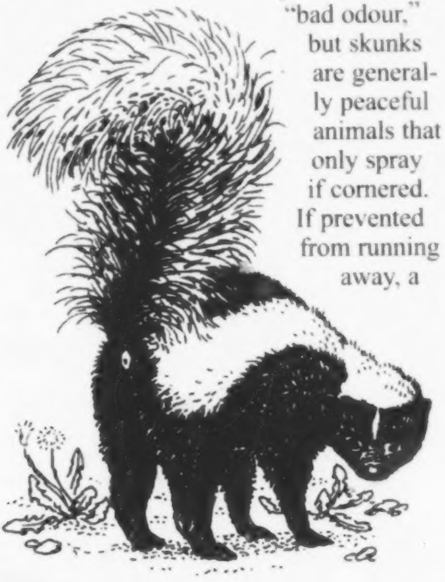
Skunks are omnivores, that is, they eat both plants and animals. They are opportunistic in their feeding habits, which means they eat almost anything they find. Striped skunks eat many species of insects which are associated with grasslands, especially grasshoppers, crickets, beetles, grubs, wasps and bees. They also eat small mammals, birds' eggs, frogs, berries, plants and carrion. They are particularly dependent on these foods in the early spring and late fall, when insects are unavailable. Skunks are nocturnal, usually feeding between the early evening and dawn.

Habitat

Striped skunks live in a variety of habitats, including open grasslands, cultivated pastures, river valleys, open forest or forest edge and urban areas. They prefer areas that are open or semi-open. They are not found in dense forest.

Survival Strategies

Skunks are famous for their ability to spray. In fact, their scientific name, "mephitis," means "bad odour," but skunks are generally peaceful animals that only spray if cornered. If prevented from running away, a striped skunk faces its attacker, arches its back, raises its tail and stamps its front feet while shuffling backward. A skunk will spray only if the intruder ignores this obvious warning. Bending its body into a "U" shape so that both its front and rear end face the attacker, the skunk sprays a horrible-smelling, eye-stinging musk from two glands located at the base of its tail. While striped skunks can send spray as far as 5 m or more and are accurate to 3 m, the unmistakable smell carries much farther.



Skunk about to spray

Researchers believe the distinctive black-and-white pattern of the skunk's fur warns other species that this animal can spray. Such warning colouration helps alert potential predators, and so protects the skunk from attack.

In late summer and fall, striped skunks eat as much as they can to store fat on their bodies. This species survives the cold Saskatchewan winter by denning up for 4–5 months. In November or December, they enter their winter dens. To conserve body heat and reduce energy loss, a group of striped skunks may share a den. Although their body temperature drops slightly, skunks are not true hibernators and often leave their dens on mild days.

Skunks use their keen sense of smell, stealth and sharp claws to locate and catch food. They are not fast runners, but instead sneak up and pounce on prey,

Quick Facts

- ✓ black with white stripes
- ✓ sprays
- ✓ various open habitats
- ✓ order Carnivora (flesh-eaters); family Mustelidae (weasels)
- ✓ most common in Prairie and Boreal Plain ecozones

much like a cat. They dig up insects, turn over rocks to find grubs and beetles, scratch the outside of beehives until the bees come out, and break open bird or turtle eggs by biting them or by rolling them on the ground.

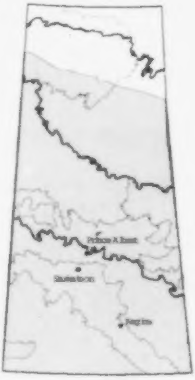
Ecological Relationships

Although often considered a nuisance, the skunk eats many insects and small mammals that can become pests if too numerous.

The skunk's spray is so effective that it has few predators. Its largest predator, the great horned owl, has a poor sense of smell and so is less deterred by the strong-smelling musk. Other predators include hawks, bobcats, badgers, coyotes, red foxes, cougars, fishers, cats and dogs.

People sometimes trap skunks for their fur. In the 1980s and early 1990s, less than 50 skunks per year were caught by trappers in Saskatchewan. Skunks are often caught by accident in traps set for foxes or coyotes.

The striped skunk is the animal most often diagnosed with rabies in Saskatchewan and, thus, is often shot and gassed by humans. The possibility of contracting rabies and, perhaps, parasites from infected skunks argues strongly against adopting young ones as pets. If a person is bitten or touched by any mammal suspected of being rabid, wash the wound or exposed surface immediately with soap and water. Then seek medical assistance for further treatment and follow-up.



Status and Range

Striped skunks are most abundant in the Prairie Ecozone. They are common in the Boreal Plain Ecozone and rare in the southern half of the Boreal Shield Ecozone. They are not found in either the northern half of the Boreal Shield Ecozone or in the Taiga Shield Ecozone.

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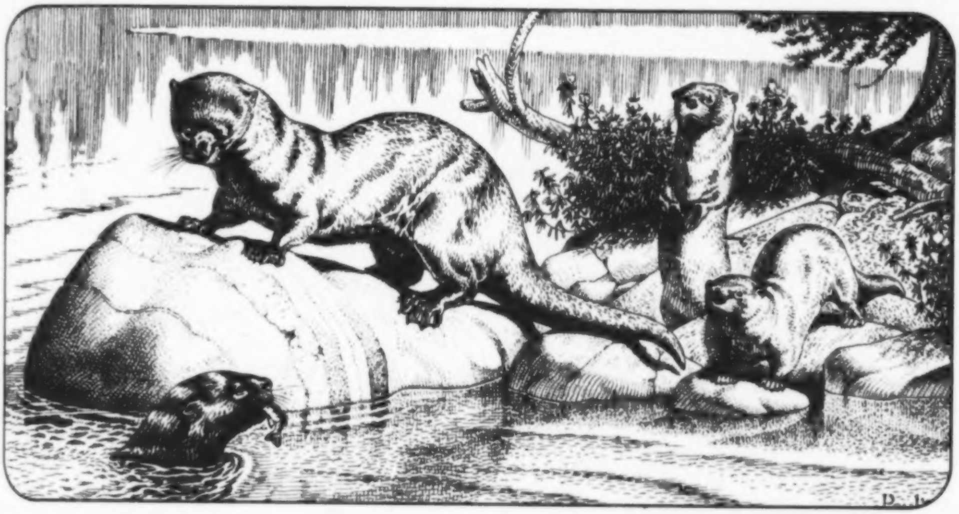
River Otter

(Lontra canadensis)



Description

This streamlined animal has a rounded snout, a long body with short legs, webbed feet and a very long tapering tail. Its short, dense fur is brownish or greyish but appears almost black when wet. Males are 96–140 cm long, including the tail, and weigh 5–14 kg. Females are smaller.

Habits

River otters can swim as fast as 11 km/h and can stay underwater as long as four minutes. They are social animals and enjoy playing, often chasing each other or sliding down muddy or snow-covered slopes.

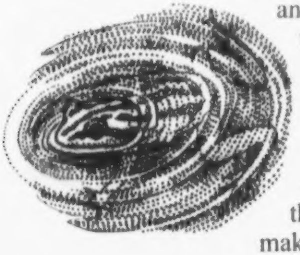
River otters mate in February, March or April. The female gives birth 10–12 months later, following delayed implantation and gestation. "Delayed implantation" means that development of a newly fertilized egg into an embryo greatly slows or stops for a period of time.

The female whelps 1–6 pups in an abandoned burrow or lodge of another species, in a cavity along a river bank, or under a rock, log or plant. At birth, the eyes of the soft, black-haired pups are closed and they have no teeth. Their eyes open at about a month. At 5–6 weeks, they start to play. At two months, they come out of the den and the mother teaches them to hunt. In another month, they are ready to learn to swim. By then, at three months, the family may travel to a new area where more food is available. Pups disperse at about one year of age, and become sexually mature at two years. Males are often 6–7 years old before they breed successfully.

Biologists are uncertain whether the father plays a role in raising the young.

Food

Otters get most of their food from the water: crayfish and fish are favourite foods. Otters also eat frogs, snakes,



Boreal chorus frog peeking head out of water

muskrats, rabbits and birds. In the summer, they eat some insects and plants, although these do not make up a large part of their diet.

Young otters depend on their mothers for food for the first few months of their lives. They begin to eat solid food in the summer and early fall.

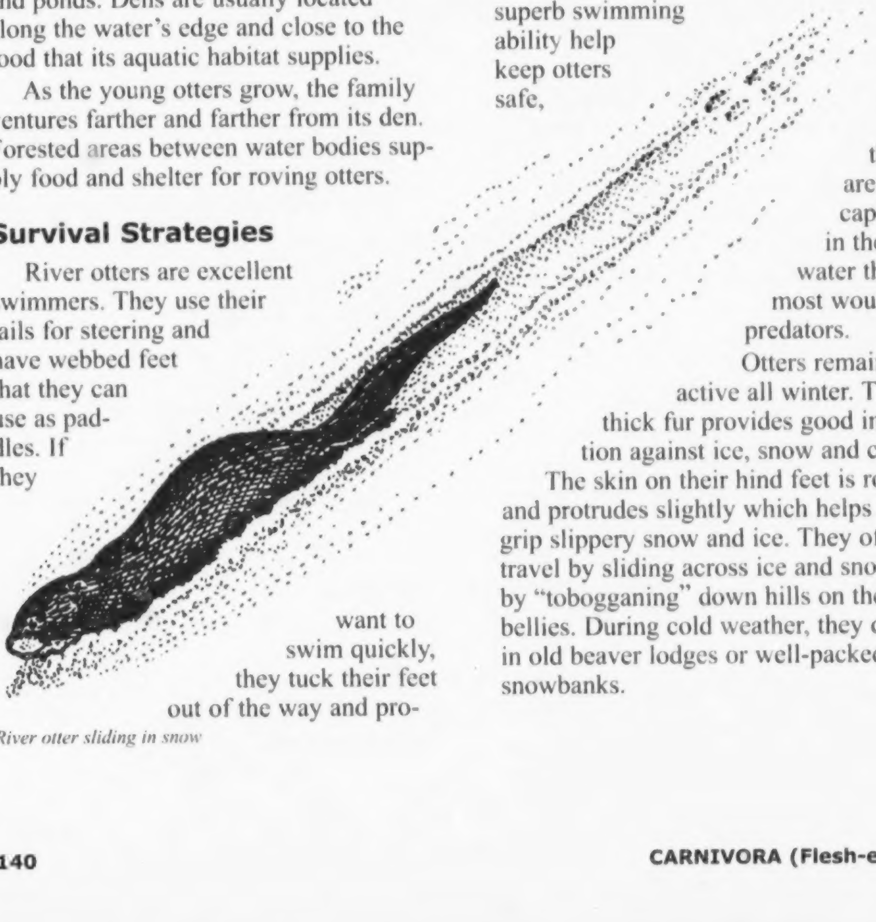
Habitat

As its name implies, the river otter is at home around rivers, lakes, marshes and ponds. Dens are usually located along the water's edge and close to the food that its aquatic habitat supplies.

As the young otters grow, the family ventures farther and farther from its den. Forested areas between water bodies supply food and shelter for roving otters.

Survival Strategies

River otters are excellent swimmers. They use their tails for steering and have webbed feet that they can use as paddles. If they want to swim quickly, they tuck their feet out of the way and propel themselves forward by moving their head, body and tail up and down.



River otter sliding in snow

Quick Facts

- ✓ streamlined body
- ✓ fast, graceful swimmer
- ✓ lives near water
- ✓ order Carnivora (flesh-eaters); family Mustelidae (weasels)
- ✓ common in Boreal Plain, Boreal Shield and Taiga Shield ecozones

Because their eyes are located high on their heads, otters are able to swim low in the water and still see above water. They have large sets of whiskers which help them find prey in murky water.

Water depth and superb swimming ability help keep otters safe, for they are more capable in the water than most would-be predators.

Otters remain active all winter. Their thick fur provides good insulation against ice, snow and cold.

The skin on their hind feet is rough and protrudes slightly which helps them grip slippery snow and ice. They often travel by sliding across ice and snow, or by "tobogganing" down hills on their bellies. During cold weather, they den up in old beaver lodges or well-packed snowbanks.

As do skunks and other members of the weasel family, otters give off a strong musk when frightened or angered.

Ecological Relationships

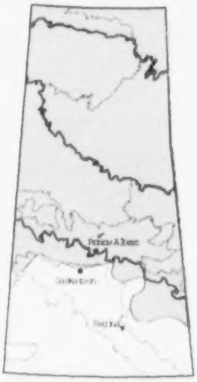
A fully grown otter has few predators, although wolves, bears and wolverines sometimes prey on them. Young otters may be taken by eagles and lynx.

Otters give birth in abandoned beaver lodges and also use them for shelter. Otters benefit from wetlands created by beaver dams.

Aboriginal peoples had always hunted the otter for its fur, but when Europeans arrived and began hunting commercially, its numbers began to decline. More recently, the river otter has been negatively affected by wetland drainage for agriculture, by urbanization and by water pollution.

In northern Saskatchewan, wetlands are mostly unaltered and the otter population has recovered. However, this species has not yet re-occupied its former habitat in southern Saskatchewan.

Otter pelts continue to be valued for their short, dense fur which is used in making coats.



Status and Range

The river otter is only found in North America. At one time, it probably lived throughout Saskatchewan, but today is common only in the Boreal Plain, Boreal Shield and Taiga Shield ecozones. It occurs, albeit rarely, in parts of southern Saskatchewan, i.e., in the Aspen Parkland Ecoregion of the Prairie Ecozone.

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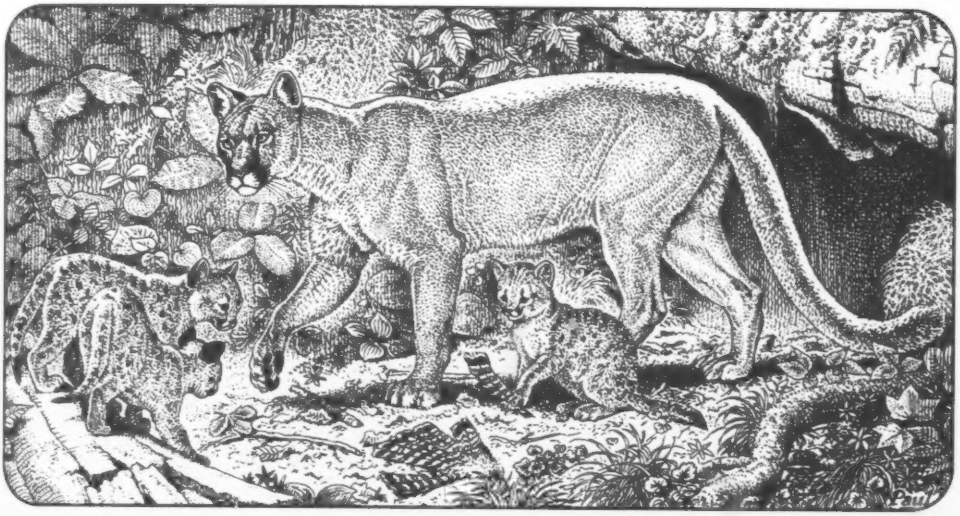
Cougar

(Puma concolor)



Description

Mountain lion, puma and panther are other names for the cougar. In the Ojibway language, the cougar is called "*micipici.*" In Cree, its name is "*misipisew.*"

The cougar is the largest wild cat found in Saskatchewan. It has a small head, large eyes and small, rounded ears. Its body is lithe and powerful. Including a rope-like tail, which may be as long as 92 cm, the typical length of the female cougar is just under 2 m; the male is generally a little longer than 2 m. The average weight of a female cougar is 41 kg. An average male is heavier, about 71 kg.

The cougar is reddish tawny to greyish tawny to brown in colour. Its throat and underparts are white. The back of its ears and tip of its tail are black.

Habits

Although usually a quiet and solitary animal, a cougar often yowls when ready to mate. Cougars first mate at about three years of age. A male will mate with as many females as will accept him. Mating can occur at any time of year. Most cougars are born between April and September.

The female gives birth about 90 days after mating. She chooses a sheltered and secluded spot where she gives birth to as many as six kittens. Newborn kittens weigh about 400 g and are densely spotted, with short, ringed tails. Their eyes and ears are closed and they are unable to walk.

The female raises the kittens alone. She weans her young between 1–2 months. At 6–7 weeks, the mother starts to bring meat to her young. Soon afterwards, the cubs begin hunting with their mother. By six months, the cubs begin to lose their spots and start looking more like adults. Cubs usually remain with their mother for about a year and a half.

Cougars may be seen during the day or at twilight, but this species is mostly nocturnal.

Food

Cougars are carnivores (meat-eaters). They most frequently hunt moose calves, deer and elk. Cougars will, however, hunt many other species, including mice, frogs, birds, rabbits, beaver, porcupine, raccoons, coyotes, foxes, ground squirrels, fish, bison, bobcat and lynx.

Cougars hunt by watching and listening for prey. Once something is detected, they creep up on their prey in a crouched position. When the cat is close enough, it will sprint to the prey and pounce on it at full charge. As well, cougars often hunt by leaping on prey from above.

Habitat

Cougars are very adaptable and can live in a variety of habitats as long as there is enough prey and cover. The types of habitat in which they are found include forest, aspen parkland and prairie. The cougar is most often found in remote areas where there is little human disturbance.

Survival Strategies

Male cougars establish separate territories. They mark their territories by scratching trees and stumps. They also urinate to leave their scent. Because they use these methods to communicate with other cougars, fighting does not frequently occur.

The cougar is a good hunter and can even hunt animals larger than itself. It has a strong body, and its jaws and teeth are specially adapted for cutting meat. The cougar's large paws help it to travel over different types of terrain. Its front paws, which are larger than its back paws, are particularly suited to grasping things. The cougar's long tail helps it to balance in trees and when running and pouncing.

Between feedings, cougars cover the remains of their kill with leaves and dirt. This hides it from scavenging mammals and birds.

The cougar's ability to conceal itself and to adapt to various types of habitats has probably helped it to survive.

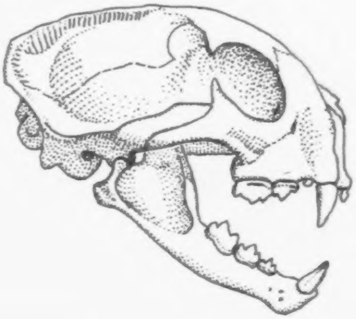
Quick Facts

- ✓ solitary and rarely seen
- ✓ remote habitat
- ✓ population status unknown
- ✓ order Carnivora (flesh-eaters); family Felidae (cats)
- ✓ Prairie and southern Boreal Plain ecozones

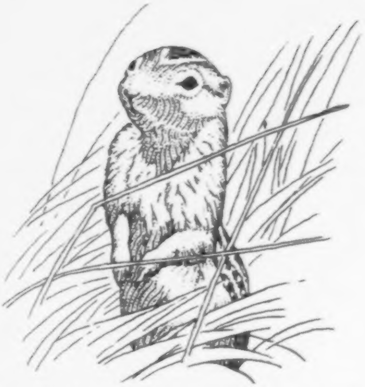
Ecological Relationships

As the cougar is at the top of the food chain, the health of a cougar population may be an indicator of an ecosystem's health. This predator requires adequate wildlife populations to sustain it. When necessary, the cougar's home range will change in response to prey movement.

As cougars hunt whatever is plentiful, they help to keep populations of various prey species in balance.



Cougar skull



Thirteen-lined ground squirrel, possible cougar prey species

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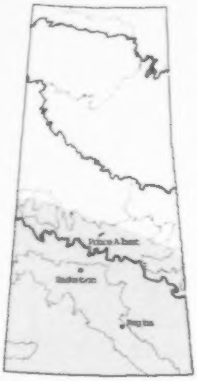
Cougars suffered from the loss of remote and undisturbed habitat as the land was settled by European immigrants. The big cats were also shot, trapped and poisoned by ranchers and farmers who were afraid for themselves and their livestock. By the 1900s, the cougar population had been reduced and cougars had been eliminated from much of their former range. In 1979, the cougar became a protected species in Saskatchewan under *The Wildlife Act*.



Status and Range

Although historically the cougar had a wider distribution, today it is generally regarded as a rare native inhabitant of Saskatchewan. No studies have been done in the province, so actual population locations and status are unknown. Cougars are believed to range over much of the southern half of the province.

Cougars are found in the Prairie and southern Boreal Plain ecozones.

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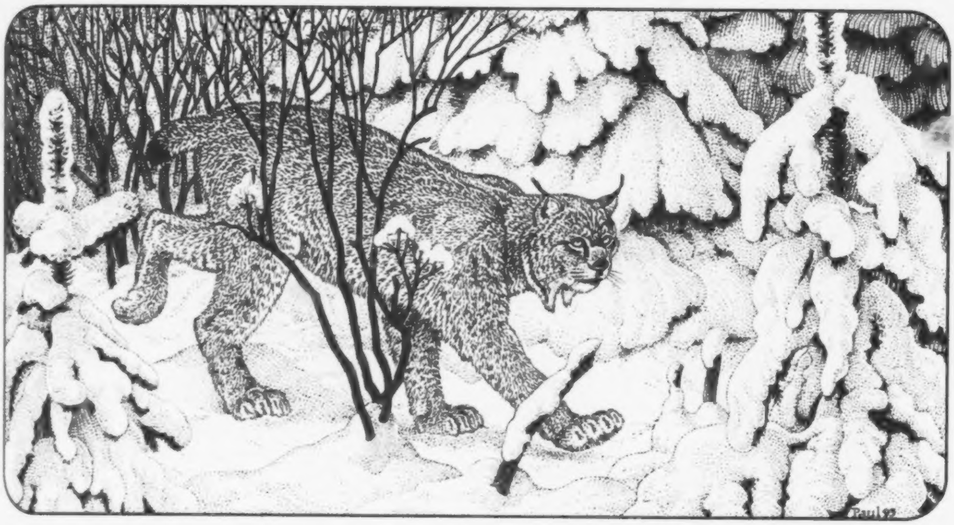
Lynx

(Lynx canadensis)



Description

This wild cat has long legs and large, furry feet. Its large, pointed ears have long, black tufts of hair at their tips. The lynx has a ruff of fur around its face. Its tail is about 10 cm long and is tipped with black.

Lynx vary from about 86–102 cm in length. Males are generally larger than females: the average weight of a male is about 10 kg, while the average weight of a female is about 8.5 kg.

In winter, the lynx has long greyish brown fur on its head, back and tail and beige fur on its belly, legs and feet. In summer, its fur is shorter and a darker, reddish brown colour.

Habits

Lynx mate from mid-March to April. The female makes a den in a hollow log, stump or rock crevice that provides shelter from the rain and cold.

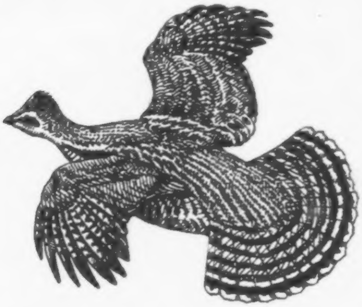
Usually, 2–3 kittens are born about nine weeks after mating. They have dark-streaked greyish fur. Their eyes are closed for approximately 14 days. Kittens begin playing when their eyes open. In their play, they learn many skills that they will later need to hunt and survive outside the den.

The mother raises the kittens. She nurses her young for about 12 weeks and also brings them small pieces of meat from the prey she has hunted. Around three months of age, the kittens leave the den and their mother begins teaching them how to hunt. At first, the kittens hunt small animals, such as mice, and then gradually learn to hunt larger prey. Kittens travel with their mother through their first winter or until she is ready to mate again. Once the young lynx leave their mother, they find their own territory in which to live, although home ranges often overlap.

Kittens get their adult coat around nine months of age, but they do not reach adult size until at least 1.5 years old. Lynx achieve their adult weight by about three years of age.

Food

Lynx are dependent on the snowshoe hare for survival. When the snowshoe hare is plentiful, lynx eat almost nothing else. It is believed that a lynx eats about 170–200 of these hares each year. When there are fewer hares to be found, or in the summer, lynx also eat grouse, ptarmigans, porcupines, squirrels, mice, deer and carrion.



Ruffed grouse in flight

Habitat

The lynx is found in the boreal forest where snowshoe hares are found.

Survival Strategies

Lynx are well suited to cold and for traveling and hunting in deep snow. They have long legs and a broad build. Their hind feet average 23 cm in size and are covered in fur. These large, furry paws act like snowshoes: they spread the animal's weight over a large area, so the lynx can walk in deep snow without sinking. Lynx only take shelter in extremely cold weather.

Quick Facts

- ✓ large feet and black ear tufts
- ✓ mostly solitary
- ✓ also called lynk, Canada lynx, gray wildcat
- ✓ order Carnivora (flesh-eaters); family Felidae (cats)
- ✓ most common in Boreal Plain, Boreal Shield and Taiga Shield ecozones

Lynx have very good senses of hearing and sight, which helps them locate prey. These cats have numerous rods (receptors which are responsive to dim light) in the retina (the sensory membrane that lines the interior surface of the eye and receives the image produced by the lens) of each eye. The presence of so many rods improves their vision in the dark.

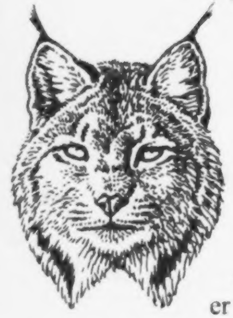
Lynx often travel along snowshoe hare trails looking for prey. Because these cats cannot run fast for long distances, they tend to hide in vegetation and wait for prey to come along. When they hear or see an animal they sneak up on it and pounce.

Ecological Relationships

Lynx are almost completely dependent on a single species for food — the snowshoe hare. The population of snowshoe hares seems to follow a cycle that is just under 10 years in length. Hares increase in number until the habitat can no longer support them. At this point the hare population crashes, providing an opportunity for the habitat to recover. As the habitat improves over time, it becomes capable of supporting more hares. The hare population increases until, once again, it crashes and the cycle begins anew.

Lynx numbers follow a similar cycle, but one that lags about 1–2 years behind the hare cycle. When the snowshoe hare

Lynx, full face

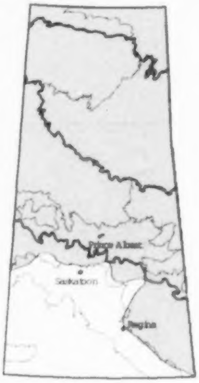


population crashes, lynx cannot find adequate food and their reproduction rate begins to decline. Fewer females have litters, litters that are produced are smaller and many of the kittens do not survive their first winter. Thus, the lynx population crashes. Once the snowshoe hare population recovers, the lynx population also increases.

Although lynx are territorial and solitary, they have been known to co-operate when prey are scarce, by sharing food and territories, and even hunting together.

Wolves and some coyotes prey on lynx, and birds-of-prey such as large owls or eagles can carry off kittens. Humans are the other main predator. Humans trap lynx because their fur is considered quite valuable.

Lynx have large home ranges over which they travel to find food. These ranges are decreased by human settlement and the clearing of forests for timber and agriculture.



Status and Range

The lynx population is constantly changing as it goes through its cycle. In Saskatchewan, the population peaked in 1960–61, 1970–71 and 1977–78. The population was very low from 1985–1989 but started increasing again in the early 1990s.

Most lynx are found in the forested areas of the province, including the Boreal Plain, Boreal Shield and Taiga Shield ecozones. Although it is unusual, lynx have been known to move onto the prairies during snowshoe hare population crashes. These cats are rare inhabitants of the Aspen Parkland Ecoregion south of the forest edge.

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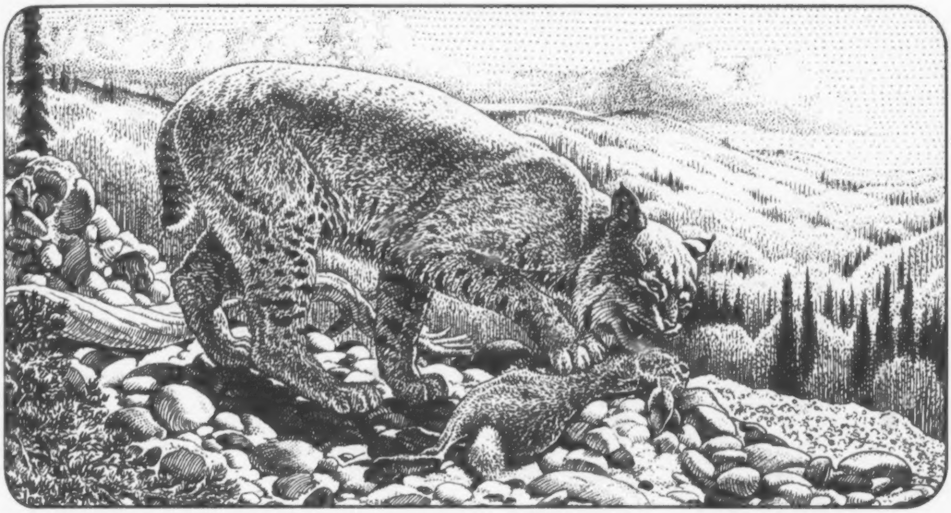
Bobcat

(Lynx rufus)



Description

Bobcats are about twice the size of a house cat. Males weigh an average of 12.7 kg, while females are smaller and weigh an average of 6.8 kg. Bobcats range from 73–95 cm in length. Their lifespan in the wild is about 10–15 years.

Bobcats have mottled or spotted fur which varies in pattern from animal to animal. In the summer, they are commonly reddish brown, while in the winter their coats are greyer. Bobcats have stubby tails that are about 12–16 cm long. The tail is marked by a broad black band on the upper tip with less distinct dark bars near the tip. The undersurface of the tail is whitish. These cats have a fur ruff around their face, and their ears are edged in black and have small, black tufts. Bobcats look a lot like lynx, but are smaller, with shorter legs and smaller paws. As well, bobcats tend to be more spotted and have a redder coat and smaller ear tufts.

Habits

Bobcats are solitary animals that come together to mate between February and April. One to six spotted kittens are born 50–70 days later. Newborn kittens are blind; their eyes open between 3–11 days. By the time they are 17 days old, they go outside and often play in the sun near the opening of the den. The kittens are weaned around two months of age. Young bobcats usually stay with their mother until the spring after their birth, when they are about one year old.

The bobcat mother takes good care of her young. She finds a den in a cave, a hollow log, on a rocky hillside or under a thick clump of brush and builds a bed from grass and weeds for her kittens. When the kittens are born, she cleans and protects them and shows them how to stay safe. As well, she teaches them how to hunt and search for food. At first, the mother brings small live prey such as mice to her young to teach them how to hunt. Later, the family abandons the den and begins traveling around their territory on hunting trips.

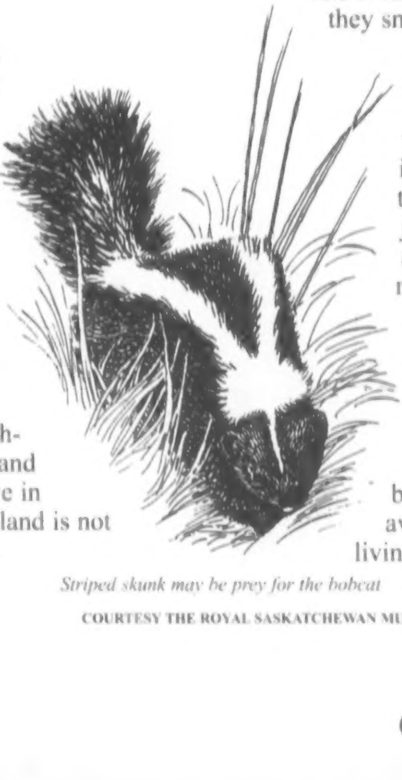
Researchers have conflicting opinions about the role the father plays in parenting. Some believe he has nothing to do with the young, while others believe that he sometimes returns after the young are weaned and brings food to them.

Food

Bobcats are opportunistic predators. That means their diet changes depending upon the season and the food available. Researchers believe that rabbits and hares make up much of the diet of this cat. Bobcats also eat mice, porcupines, shrews, moles, raccoons, skunks, rats, squirrels, chipmunks, mink, beaver, muskrat, weasels, pronghorn fawns and prairie dogs. In addition, they eat birds, amphibians, reptiles and insects, although not as frequently. Bobcats sometimes hunt deer and eat carrion, especially in the winter.

Habitat

Bobcats are found in various types of habitat but do not live in areas of dense forest or deep snow. They are often found in regions that have rougher terrain, such as badlands or rocky hillsides. Across North America, these cats are found in woodlots, open or broken forests, shrubland, marshes, swamps, grasslands and deserts. Bobcats will live in agricultural areas if the land is not too intensely cultivated.



Striped skunk may be prey for the bobcat

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Quick Facts

- ✓ smallest Canadian wild cat
- ✓ shy and rarely seen
- ✓ rare in Saskatchewan
- ✓ order Carnivora (flesh-eaters); family Felidae (cats)
- ✓ found in Prairie Ecozone

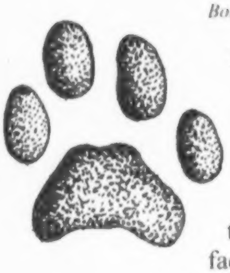
Survival Strategies

Bobcats are alert and secretive. Their hearing is very good. They also have excellent night vision: their eyes have cells that reflect light well and their pupils open wide to let in light. Although they can run quickly, they can only do so for short distances. In addition to flushing prey, they can also hunt by lying hidden in vegetation or a tree, camouflaged by their spotted coats. They are alert to any movement as they lie quietly watching for prey to wander by. When they detect something, they wait for the creature to move closer. Alternatively, they sneak up on the animal and pounce.

Bobcats have long, retractable claws, which they keep sharp by scratching on tree trunks. As well, they have short, strong jaws and sharp teeth that are specialized for eating meat. Bobcats are such good hunters that they are sometimes able to kill deer, even though deer weigh about five times as much as they do.

Bobcats are territorial, but rarely fight because they avoid each other, even when living in overlapping territories.

Bobcat footprint



Bobcats inform other bobcats of their whereabouts by marking logs, brush and trees with their urine and faeces.

Ecological Relationships

Bobcat predators include cougars, coyotes, wolves, dogs and humans. Bobcats are hunted and trapped by people for their fur, which is used to make coats and accessories. In 1973, the *Convention on International Trade in Endangered Species (CITES) Act* was passed. It restricted the hunting of some other species of spotted cats, which resulted in bobcat pelts becoming more popular. In Saskatchewan, however, usually less than 30 bobcats are taken each year.

Food shortages appear to one of the main limiting factors for bobcat populations. When there is too little food, bobcats increase their range or territory to look for more. When there is an abundance of food, especially rabbits and hares, bobcats have higher reproductive success.

Bobcats are an important part of the ecosystem. They help to keep populations of their prey healthy by hunting weak and sick animals. They also contribute to the balance of nature by keeping the numbers of small mammals under control.

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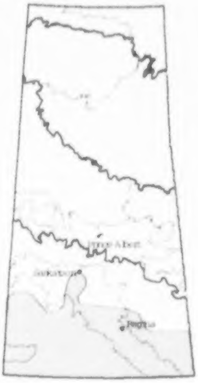


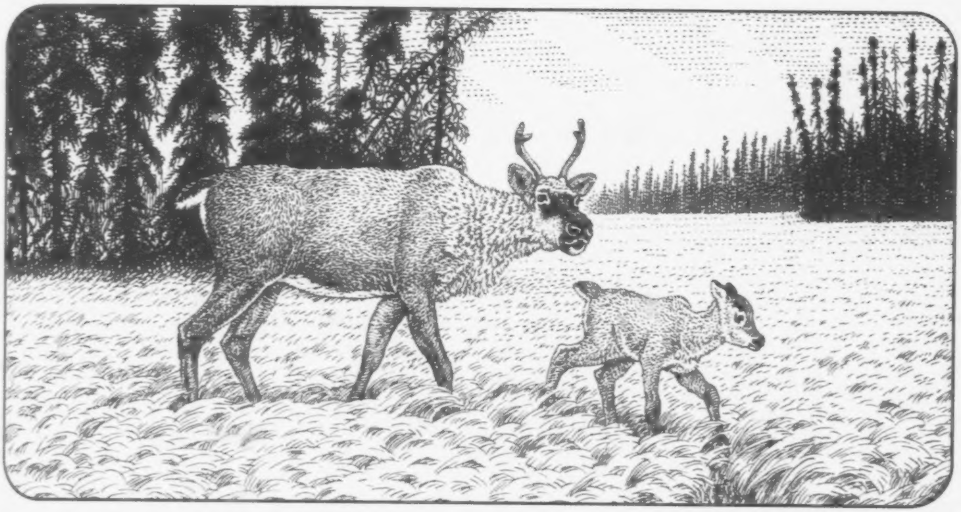
Status and Range

The bobcat is considered to be a rare inhabitant of the Prairie Ecozone. Because bobcats are elusive and widely dispersed, little is known about the bobcat population of Saskatchewan.

Order Artiodactyla (Even-toed Hoofed Mammals)

Caribou

(Rangifer tarandus)



Description

Caribou are members of the deer family. They are smaller than moose or elk but larger than white-tailed or mule deer. Caribou are brown or dark brown on their face and body, with a white neck, a white rump and narrow white bands above each hoof. They are the only member of the deer family in which both males and females have antlers.

Habits

Male caribou, or bulls, court females by attracting groups of them and their calves to mating grounds in early fall. Each female, or cow, gives birth to a single calf in mid-May to early June. The newborn calves are very hardy and are able to walk and run soon after birth. The calf gets mother's milk for several weeks but soon learns to eat plants growing in the area. It stays with its mother for the first year of its life.

The smaller barren-ground caribou (*Rangifer tarandus groenlandicus*) is always on the move, travelling in herds of 50 to several thousand animals. Those living in Saskatchewan migrate long distances every fall and spring through the far north of the province, the Northwest Territories and Nunavut. Most years, they enter Saskatchewan in the winter and return to the treeless tundra of the arctic in the spring. There, in spring and early summer, the calves are born.

The larger woodland caribou (*Rangifer tarandus caribou*) lives in Saskatchewan all year long. They travel in small groups of 2–20 animals and rarely move more than several kilometres within a small home range. In spring, cows give birth in a secluded spot such as an island or in the middle of a swamp.

Food

Caribou eat the leaves and tender

shoots of many kinds of plants and plant-like organisms. Their favourite food is lichen which grows on the ground and on trees. They depend on this food during the long, cold winters of the far north.

Habitat

Barren-ground caribou spend the winter in spruce and pine forests where lichen can be dug from under the soft snow. In summer, they move north to the tundra. There, the wind helps keep insects away while the caribou graze on new green plants.

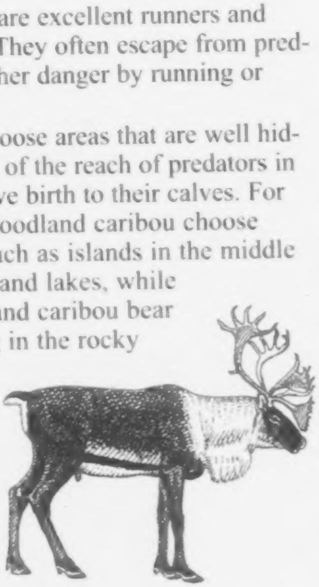
Woodland caribou live all year in or near the swamps of the spruce and pine forests, where the lichen grows best. In summer, they choose areas where they can find leafy plants.

Survival Strategies

Barren-ground caribou are always on the move. In the winter, these caribou migrate to the forest where food is easier to find.

Caribou are excellent runners and swimmers. They often escape from predators and other danger by running or swimming.

Cows choose areas that are well hidden and out of the reach of predators in which to give birth to their calves. For example, woodland caribou choose locations such as islands in the middle of swamps and lakes, while barren-ground caribou bear their young in the rocky barren lands.



Male woodland caribou

Quick Facts

✓ barren-ground and woodland subspecies
✓ excellent runners and swimmers
✓ important to aboriginal peoples
✓ order Artiodactyla (cloven-hoofed mammals); family Cervidae (deer)
✓ Boreal Plain, Boreal Shield and Taiga Shield ecozones

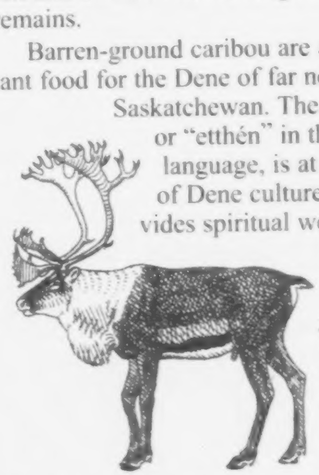
Ecological Relationships

Caribou are best adapted to a cool northern climate where change occurs very slowly. They avoid forests that have burned recently. They move about over large areas so that the slow-growing plants upon which they depend for food are not depleted.

Caribou populations are reduced by severe weather conditions, predators, hunting and destruction of habitat. Calves often die from exposure to cold, snow, rain and biting insects.

Caribou are an important food for wolves, especially in winter. Other animals such as the bear, wolverine, raven, fox and small birds scavenge on caribou remains.

Barren-ground caribou are an important food for the Dene of far northern Saskatchewan. The caribou, or "etthén" in the Dene language, is at the centre of Dene culture. It provides spiritual well-being as well as food and clothing. The Dene and other aboriginal peoples of



Male barren-ground caribou

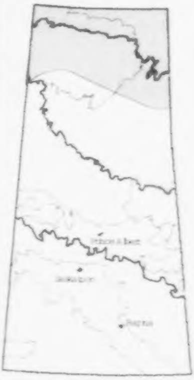
Wollaston, Black Lake, Stony Rapids, Fond-du-Lac, Uranium City and Camsell Portage hunt barren-ground caribou from fall to spring, until the caribou return to the tundra.

In 1982, the herds of caribou that migrate into Saskatchewan each year began to receive close attention. A special cooperative management board was established to better protect this species. The board includes wildlife managers from provincial governments, as well as representatives of aboriginal communities.

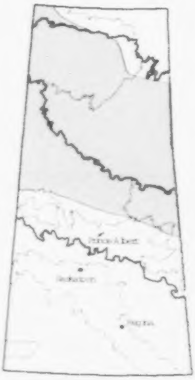
Woodland caribou are an important food for many Cree and Dene. They eat the meat and use the hides to make clothing.

The sport hunting of barren-ground caribou is restricted to residents of Wildlife Management Zone 76, which includes all of the Taiga Shield Ecozone and part of the Boreal Shield Ecozone.

Since 1987, the sport hunting season for woodland caribou has been closed. This was done to better protect this subspecies in areas where there were both heavy hunting pressure and very low populations of animals.



Barren-ground caribou



Woodland caribou

Status and Range

During the 20th century, barren-ground caribou populations in Saskatchewan have slowly declined, but animals are still plentiful in the far north. They do not range as far south in this province as they once did. Presently, these caribou winter in the forests north of Wollaston Lake and Lake Athabasca.

Woodland caribou populations have declined in the last 40 years. This is especially true in the southern part of their range, which is north of Prince Albert, Hudson Bay and Big River. As a result of logging and other human activities, woodland caribou have become a threatened subspecies.

Barren-ground caribou are found in the Taiga Shield and northern Boreal Shield ecozones.

Woodland caribou live primarily in the Boreal Plain and Boreal Shield ecozones; some are found in the Taiga Shield.

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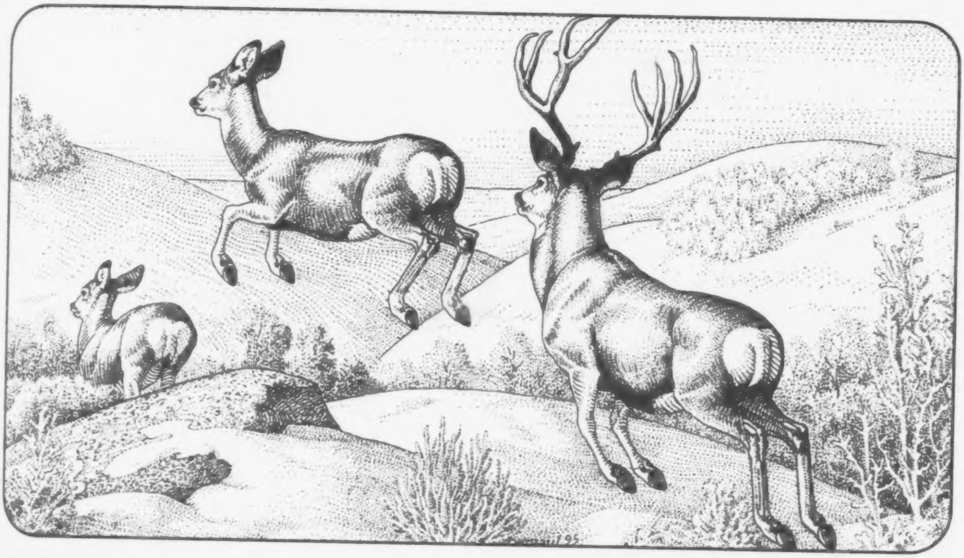
Mule Deer

(Odocoileus hemionus)



Description

The mule deer gets its name from its large mule-like ears. Mule deer are somewhat bigger and stockier than white-tailed deer. They also differ in that mule deer have a prominent white rump patch with a smaller black-tipped white tail. Mule deer do not carry their tail erect when alarmed, unlike white-tailed deer.

In the summer and fall, bucks (males) can be recognized by their antlers. Antlers begin growing in April. They are shed in late December or January. Does (females) do not have antlers.

Mule deer antlers are forked; mature bucks normally carry antlers with four large prominent points on each side.

The summer coat is thin and reddish brown in colour. The winter coat is much thicker and greyish.

Adults grow to be about a metre high at the shoulder. Females weigh approximately 50–80 kg, while males may weigh from 100–175 kg.

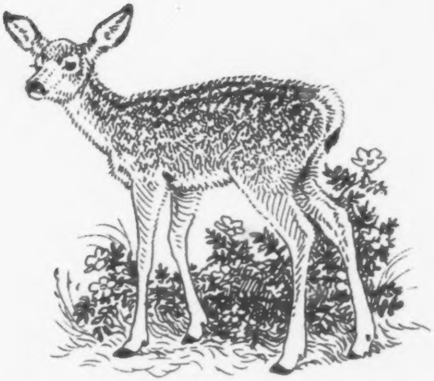
Mule deer can live up to 10 years in the wild, but an average is 4–5 years.

Habits

Mule deer, like most members of the deer family, are most active in the early morning and late evening. During the day, they usually bed down in shrubby or hilly areas.

Mule deer are quite social and are often found in groups. When alarmed they run with a stiff-legged, bouncing gait.

In Saskatchewan, mule deer usually breed in November. Mature bucks associate themselves with a group of does and fawns and drive off rival intruding



Mule deer fawn

Quick Facts

- ✓ mule-like ears
- ✓ stiff-legged gait when alarmed
- ✓ grass-shrub habitat
- ✓ order Artiodactyla (even-toed hoofed mammals); family Cervidae (deer)
- ✓ Prairie and Boreal Plain ecozones

bucks. Does do not normally breed until they are at least 1.5 years of age. They usually give birth to 1–2 fawns in early June. Newborn fawns weigh about 3–4 kg and are rusty-brown with white spots.

Food

Mule deer eat many different plants, varying with season and availability. During the summer, grasses, forbs (non-woody plants, excluding grasses) and green browse (woody plants) form the majority of their diet. In the autumn and winter, woody browse, such as chokecherry, saskatoon berry, snowberry and, in some areas, creeping juniper, become more important foods.

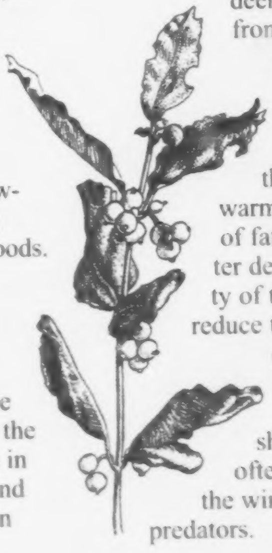
Habitat

Mule deer range from the extreme southern part of the province to the boreal forest of the north. They are most abundant in the southwestern part of the province in native grass-shrub habitat types and rugged, hilly terrain. Mule deer, in recent years, have become more abundant in other areas of the province and may be found in habitats as diverse as farmland shelterbelts, aspen bluffs and forested areas.

Survival Strategies

Mule deer have excellent sight, smell and hearing to help them detect danger. Depending upon circumstances, they may hide, sneak away or run from danger. Their zigzag, stiff-legged bounding trot helps them to escape predators in rough terrain. Frightened mule deer may often bound away from danger, only to stop some distance away to look back at what disturbed them.

To help survive the winter cold, mule deer grow thick coats to keep them warm. They also build up layers of fat. Fat helps them to over-winter despite the relatively low quality of their winter diet. Mule deer reduce their movements during extremely cold weather to conserve energy and will readily take advantage of sheltered, sunny areas. They often gather in large herds during the winter as protection against predators.



Western snowberry, a woody browse

COURTESY THE ROYAL SASKATCHEWAN MUSEUM

Newborn fawns are born with white spots that provide camouflage. They have almost no scent and are able to remain motionless while at rest.

Ecological Relationships

Drought reduces both the quantity and quality of food, decreasing the deer's ability to build up adequate fat reserves for the upcoming winter. Areas that provide adequate shelter and food, whether shrubs, trees or hills, are critical for mule deer survival during the winter months. Severe winter weather that brings deep snow and very cold temperatures can cause starvation. However, given favourable habitat and climatic conditions, deer numbers can rebound within a few years.

Coyotes prey upon fawns and sick, old or crippled mule deer.

Mule deer is a very popular game species in the province, providing food and recreation to about 14,000 hunters annually.

This species lends itself well to recreational viewing. That is because of its calm disposition and residence in relatively open habitats.

Because mule deer often eat agricultural crops, resulting economic losses to farmers and ranchers can be high in some areas. This is an important consideration when managing mule deer populations.

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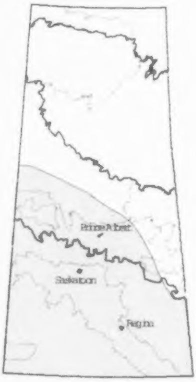


Status and Range

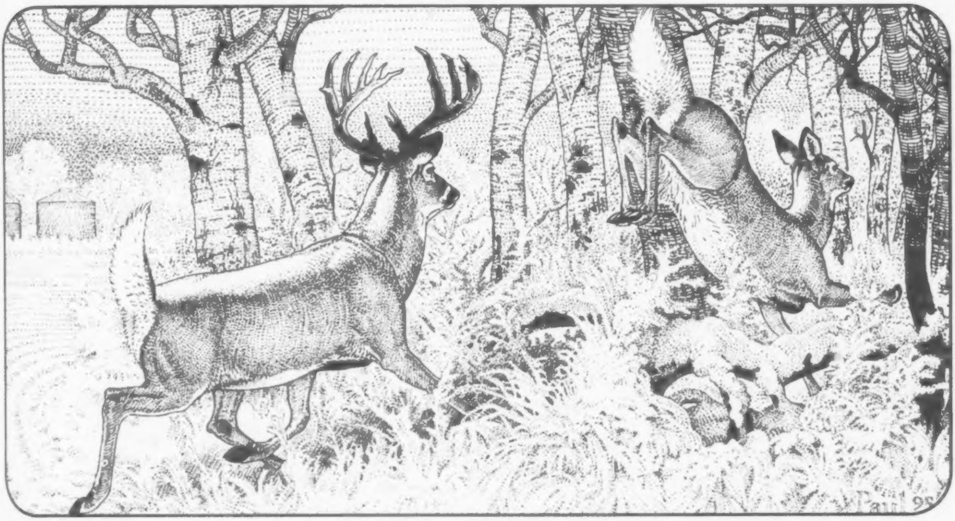
Mule deer were widespread across the prairies and forests of Saskatchewan before European settlers arrived. Habitat loss caused by agricultural development, heavy hunting pressure and other undetermined factors caused a steady decline in numbers, until less than 12,000 mule deer lived in the province in the late 1960s. In the 1980s, the mule deer population rebounded somewhat due to a number of mild winters and restrictive hunting regulations. The current provincial mule deer population likely exceeds 50,000 animals.

Although highest densities are still found in the shrub-grassland areas of southwestern Saskatchewan, mule deer numbers are increasing in other parts of the province.

Mule deer are most common in the Prairie Ecozone but also are found in the Boreal Plain Ecozone.

White-tailed Deer

(Odocoileus virginianus)



Description

White-tailed deer are often called "flag-tails" or "jumpers" because of their behaviour when alarmed. They lift and wave their tails and run in a series of short galloping bounds, usually followed by soaring leaps.

In the summer and fall, bucks (males) can be recognized by their antlers. Antlers begin growing in April. They are shed in late December or January. Does (females) do not have antlers.

White-tailed deer have a reddish brown coat in spring and summer and a brownish grey coat in winter. The lower surface of the tail, chin, throat and underparts is white.

White-tailed deer stand about a metre high at the shoulder and are 1.8 m long. Adult males weigh 60–135 kg; adult females are lighter and weigh 50–80 kg.

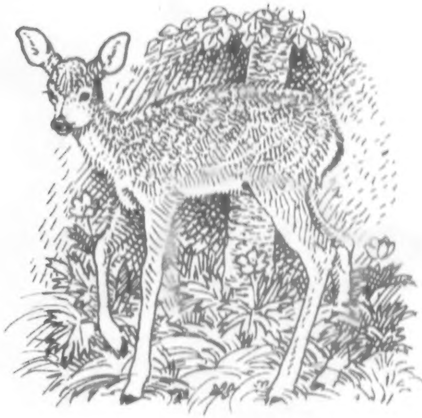
Habits

White-tailed deer sometimes travel long distances looking for food, shelter or mates, but usually are more sedentary. They often live their entire lives no more than 16 km from their birthplace.

Deer feed most actively in the early morning and evening. The rest of the day they look for areas with trees or shrubs. There they can hide from predators, escape the cold or heat, rest and avoid humans.

Deer rut (breed) in the fall. One buck may mate with as many as 6–8 does. A doe usually gives birth to two fawns, each weighing about 4 kg, in late May or early June. Young are born with a rust-coloured coat dappled with white spots.

Between nursings, does leave their fawns hidden in the bush. Well camouflaged by its spotted coat, a fawn usually remains very still while its mother



White-tailed deer fawn

browses on vegetation some distance away. Sometimes a fawn may wander away, but its mother can readily find it by tracking its smell.

Fawns are nourished by their mother's milk for the first four months. They grow quickly and by September have lost their spots. By October, the young deer are eating vegetation. White-tailed deer are fully mature by two years of age.

Deer communicate by sight, sound and scent. They snort, grunt or leave odours to warn other deer, establish territories and breed.

White-tailed deer often form small groups. These consist of an adult doe, her young fawns and some of her fawns born the previous year (yearlings). Young bucks may join these family groups, but older bucks tend to travel alone or with other bucks.

Food

Deer eat twigs, leaves, buds and berries from woody plants (browse), such as dogwood, saskatoon, aspen and chokecherry. They also eat forbs (non-woody plants, excluding grasses) and some grasses. In agricultural areas, crops such as alfalfa, clover and cereal grain form part of their diet.

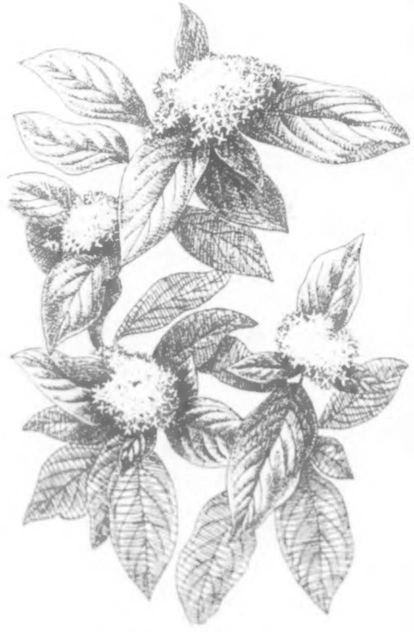
Quick Facts

✓ white underside of tail
✓ lifts tail when alarmed
✓ called "flag-tail"
✓ order Artiodactyla (even-toed hoofed mammals); family Cervidae (deer)
✓ common in Prairie and Boreal Plain ecozones

If available, deer drink water every day. However, they are able to survive long periods without water. When deer are thirsty in the winter and there is no open water, they eat snow.

Habitat

In southern Saskatchewan, white-tailed deer depend on large areas covered by trees and/or shrubs, especially during the winter. If such habitat is scarce or



Red-osier dogwood, a woody browse

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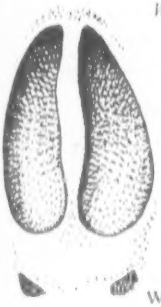

White-tailed deer track

unavailable, deer frequent wooded coulees, water drainages, valley slopes, sandhills and hilly areas.

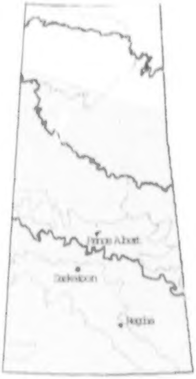
In the northern part of the province, deer inhabit stands of hardwood, softwood and mixedwood (a mixture of hardwood and softwood tree species) forest stands. They favour the edges of clearings, logged areas, burns and waterways.

Survival Strategies

White-tailed deer have several strategies to help survive harsh prairie winters. From spring to fall, deer eat large amounts of food. This produces fat reserves that nourish them when food is scarce. Deer grow a heavy winter coat. They "yard-up" or seek heavily wooded habitat for protection against cold temperatures, wind and deep snow. To conserve energy, deer are less active during the winter. They become more active only during warm periods or at the end of the winter. Often deer will bed down on south-facing hillsides during the cold months to take advantage of the sun's heat.

A deer's best defence is to avoid detection. If this fails, they usually run away. Adult deer can run fast, as much as 50 km/h. Does often bed separately from their fawns so coyotes cannot locate the fawns as easily.

Deer have excellent senses of smell and hearing. They usually rely on these senses more than sight to communicate or alert each other of danger. White-tailed deer have glands between the lobes of their hooves. As they walk, these glands leave a scent, enabling deer to locate one another.



Status and Range

Today, white-tailed deer are common from the extreme southern part of the province to as far north as the Churchill River. The highest numbers of deer live in the treed agricultural areas of eastern and central Saskatchewan.

Prior to the 1900s, white-tailed deer were rare on the prairies. With the expansion of human settlement, the land changed. Natural prairie fires were brought under control. Brushy woodland cover began to grow, providing shelter. As a result, these deer increased dramatically in the 1940s and 1950s. At present, there are about 300,000 animals in the province.

White-tailed deer are most common in the Prairie and Boreal Plain ecozones. They are found infrequently in the Boreal Shield and Taiga Shield ecozones.

White-tailed deer try to keep their young safe from predators. Does give birth in areas sheltered by trees and/or shrubs, and move their fawns often. Even so, malnutrition and predation claim many young deer. Only about half of all fawns born in the spring will survive until fall.

Ecological Relationships

White-tailed deer populations fluctuate yearly. Such fluctuations are caused by the severity of the winter, fawning success and habitat conditions. Deep snow, hard ice crusts on the snow's surface and prolonged cold temperatures can cause many deer to die of starvation. Coyotes prey on fawns. Deer populations can, however, rebound rapidly, because deer reach breeding age quickly and can produce fawns every year.

Habitat is critical for deer survival. They must have woody plant species to eat and large blocks of suitable habitat for shelter. Deer numbers have decreased in southern Saskatchewan in recent years because of habitat loss. Much white-tailed deer habitat has been cleared by humans.

White-tailed deer were hunted by early European settlers, providing much needed food. Today, they are the most popular big game species in Saskatchewan, and are still used for food. About 50,000 deer, or 20% of the population, are taken each year by licensed and aboriginal hunters.

Saskatchewan is noted for having more white-tailed deer with large antlers than any other part of North America. The largest set of white-tailed deer antlers, as scored by the Boone and Crockett system, belongs to a buck taken in 1993 by Saskatchewan farmer Milo Hanson. The Hanson buck was shot near Biggar.

Deer provide recreational viewing for the majority of Saskatchewan residents. White-tailed deer are large, easily observed, attractive and fun to watch. Many people feed deer in order to watch them and to help them survive harsh winters. This species' abundance, wide distribution and close association with the farming community make white-tailed deer an important part of the prairie landscape.

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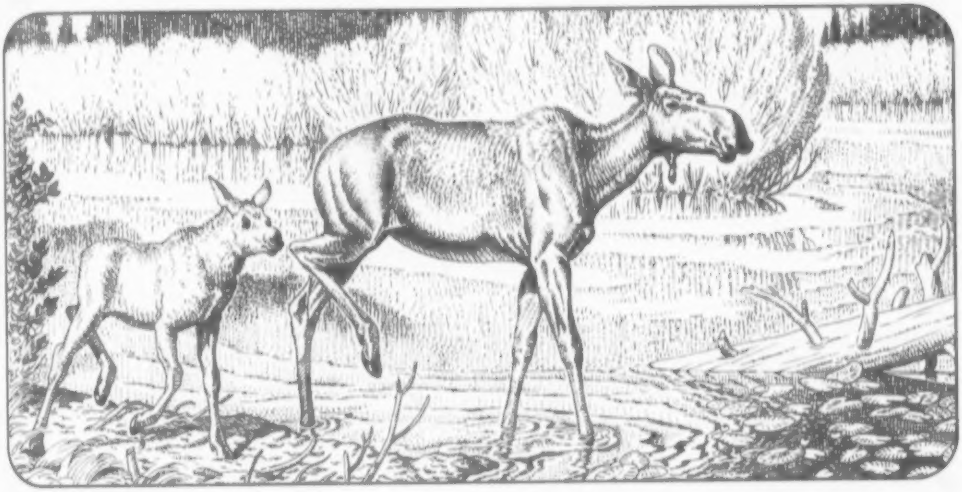
Moose

(Alces alces)



Description

The moose is the largest member of the deer family, about the size of a horse. In Saskatchewan, mature bulls weigh about 460 kg and stand about 181 cm at the shoulder. Mature cows are smaller: about 400 kg in weight and approximately 179 cm tall.

Bull moose have impressive antlers, which begin growing in April and are shed in December or January. Cow moose do not have antlers.

Moose have a long head, a large nose, and ears that resemble a mule's. They have a dewlap (or bell), a hair-covered fold of skin that hangs from their throat.

In winter, moose are dark brown in colour, sometimes with a reddish or greyish highlight. In summer, their hair lightens in colour.

Habits

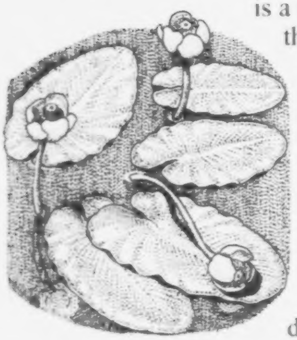
The rutting (breeding) season begins in mid-September. The bull and cow attract one another by calling. Calls by the bull may warn other males to stay away. Each bull mates with as many cows as possible. However, he stays with an individual cow until she is no longer in breeding condition.

The cow gives birth to 1–3 calves in late May to early June. A calf weighs about 14 kg at birth. It is quite helpless for the first few days, and the mother hides the calf to protect it. But young moose grow rapidly and can run, swim and call when only a few days old. During their first month, calves may gain 0.5–1.0 kg each day. Later in the summer they may gain as much as 2–3 kg per day.

Calves stay with their mothers for at least the first year of their lives.

Food

The word "moose" is derived from an Algonkian term that means eater of twigs. True to their name, browse (twigs)



Water lily, a favourite food

is a major part of this animal's diet. Moose even have a technique to bring otherwise inaccessible browse into reach. They straddle small trees and shrubs, using their body weight to bend branches and sometimes the trunk closer to the ground. In summer, in addition to twigs and branches, moose eat tree and shrub leaves. They also eat water plants, such as water milfoil and water lilies, which they find in lakes and ponds.

In Saskatchewan, most of their woody diet is aspen and willow, supplemented by shrubs. Some desirable shrubs are red-osier dogwood, saskatoon and choke-cherry. Moose require 18–25 kg of browse per day.

Habitat

When fire or logging opens up patches of forest, the colonizing trees and shrubs provide a huge amount of browse. This is why the most productive areas for moose are those which are in the early stages of forest succession. In good habitat, populations can be as high as two moose/km^2. More typically, they average about 0.8 animals/km^2. Moose are often found near water.

Survival Strategies

Moose have poor eyesight, but excellent senses of smell and hearing.

Despite their great size, they are elusive. Moose can move quietly through the forest and "freeze" to avoid detection. They can run as fast as 50 km/h when frightened. Their cloven (split) hooves provide good traction on both rough and soft surfaces.

Quick Facts

- ✓ solitary
- ✓ common in heavily wooded areas
- ✓ long legs
- ✓ order Artiodactyla (even-toed hoofed mammals); largest member of Cervidae (deer) family
- ✓ found mostly in the Boreal Plain, Boreal Shield, and Taiga Shield ecozones

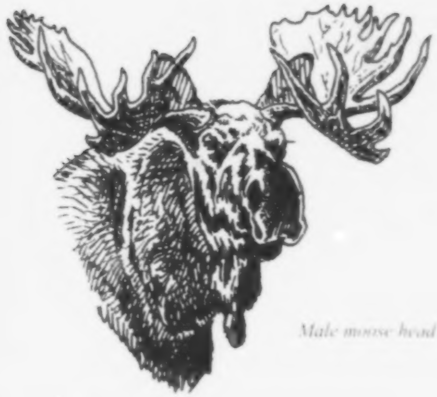
Moose are good swimmers and can even dive for water plants.

Long legs help them travel over rough terrain and deep snow. Their large body size lessens heat loss and so helps to conserve body heat in the winter. Moose can conserve energy in another way, too. They actually slow their metabolism during the winter, thus reducing the amount of food needed to survive.

Ecological Relationships

Wolves, bears and human hunters prey on moose. Black bears often take calves in the spring. Wolves prey on moose in poor condition. Wolves also take moose when the snow is deep, for such conditions favour wolves at the expense of moose.

Moose populations fluctuate. If there are too many animals, competition for food may lead to a malnourished population. Poorly fed moose are more susceptible to ticks, internal parasites, disease and predators than are well nourished animals. In most areas of Saskatchewan, however, predators (including humans), deep snow and other natural causes of death keep moose populations below what the habitat would support in the absence of such mortality factors.



Male moose head

White-tailed deer, snowshoe hares and beaver compete with moose for food.

Moose meat is a staple food for northern residents of Saskatchewan. It is greatly prized by sportsmen as well. Moose hunting is so popular in Saskatchewan that strict regulations are necessary to control the number of moose harvested by humans. Interest in moose is not limited to the dinner table. The number of people observing and photographing this solitary giant is growing each year.

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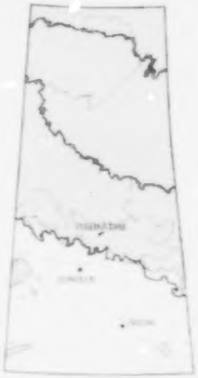


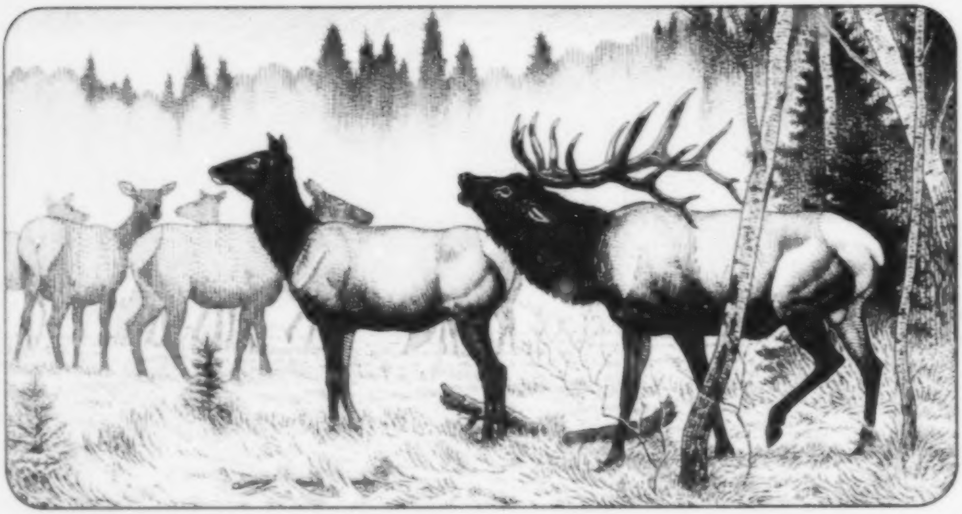
Status and Range

Moose are found from the southern Boreal Plain Ecozone (Boreal Transition Ecoregion) north through the Boreal Shield and Taiga Shield ecozones. There are small populations in the Prairie Ecozone: the Cypress Hills Forest (Cypress Upland Ecoregion) and the Moose Mountain Uplands (Aspen Parkland Ecoregion).

The moose population in northern Saskatchewan is fairly stable and may be increasing.

Elk (Wapiti)

(Cervus elaphus)



Description

Elk are also called wapiti. They have keen senses of smell, sight and hearing. In the summer, elk are a reddish tawny colour, darkening to a brownish or greyish tawny in the winter. Elk have a distinct, yellowish-brown rump patch. The head, mane and legs are dark brown. Calves are born with a spotted, tawny coat. The spots help camouflage them.

Elk are the second largest members of the deer family, after moose. Adult bulls (males) can weigh as much as 400 kg but usually range between 275–350 kg. Cows (females) are about three-quarters of the size of bulls. In length, elk range from 210 cm for females to 300 cm for males. For males, average shoulder height is 150 cm.

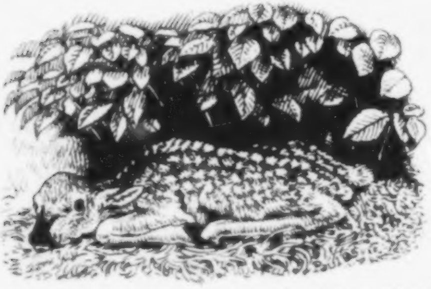
Elk tracks are "half-moon" in shape. They look quite similar to those of adult domestic cattle, but are usually smaller.

Bull elk have large antlers that are shed each year around March or April. New antlers grow to full size by August. In summer they are covered by "velvet" (the skin that covers and nourishes the antlers as they grow). By late summer, the velvet dries. The bull rubs it off, revealing a set of majestic, ivory-like antlers.

Habits

During the rut (breeding season), between late August and early October, older bulls try to attract as many cows as possible. Younger bulls remain outcasts but still try to steal cows from older bulls. At this time bulls frequently mark their territory by calling or bugling and leaving scent. The sexes separate after breeding. In the winter, cows and calves form their own herds, excluding the bulls. Bulls form their own groups at that time.

Cows usually breed in their second



Elk calf curled up in brush

Quick Facts

- ✓ reddish brown to dark brown coat
- ✓ gather in bands
- ✓ wapiti
- ✓ order Artiodactyla (even-toed hoofed mammals); family Cervidae (deer)
- ✓ Boreal Plain Ecozone; locally in Prairie Ecozone

year of life. The gestation period is 249–263 days. A cow leaves the group when it is time to calve. She gives birth to one or two calves between May 15 and June 15. Newborn calves weigh 12–18 kg and are hidden for at least 10 days. At first, they suckle on milk but within two weeks begin to eat green plants. Elk reach full size at about four years of age.

Food

Elk prefer to graze on a large variety of grassy, forb-like and woody vegetation that grows within or near the forest. Forbs are green, non-woody plants, but are not grasses. Elk are adaptive feeders, meaning they eat what is available. They eat grassy and forb-like vegetation, supplemented by woody browse. This browse becomes more important when deep snow arrives. They readily venture onto farmland to feed on crops and to raid unprotected haystacks when winter weather becomes severe.

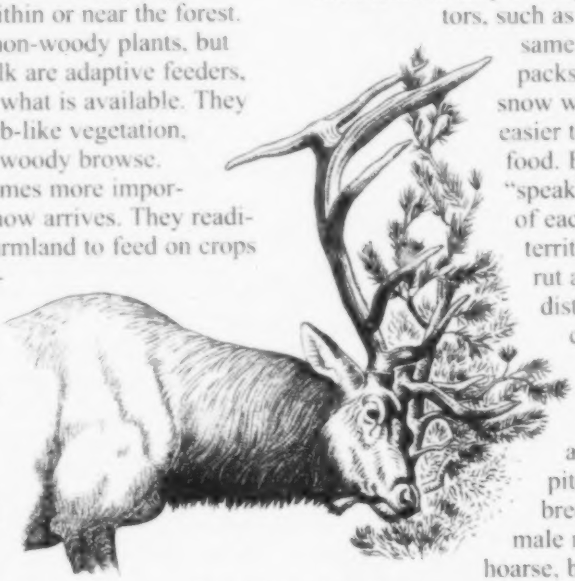
Habitat

Elk are found in forest or nearby parkland. They have adapted well to the forest edge and from there often wander onto the farmlands to feed.

Once common on the prairies, elk were pushed into the forest by agriculture. They prefer mixed-wood and aspen cover in areas where the woods are open.

Survival Strategies

Herding behaviour in elk has contributed to their survival. In cold weather, elk often gather in larger herds. Wary herd leaders keep a sharp eye for predators, such as wolves. At the same time, herding packs down deep snow which makes it easier to travel and find food. Elk frequently "speak" to keep track of each other, to mark territory during the rut and to announce distress. Often, they communicate with a mewing sound. The distress signal is a short, high-pitched bark. In breeding season, the male makes a loud, hoarse, bugling sound.



Elk male rubbing his antlers

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Elk's keen senses allow this species to quickly detect danger and escape swiftly.

Elk use bogs in the summer to keep cool and escape insects. They use dense cover to help keep warm in winter. Elk cows often use farmland bluffs, islands in rivers, and other secluded areas to calve. At birth, calves already know how to hide quietly to avoid detection by predators.

When winter conditions become severe, elk become less active. They concentrate on remaining in good feeding areas where there is shelter (such as brush) in which they can keep warm. The winter coat of fur is thick and insulates well, while the summer coat is shorter and less dense.

Ecological Relationships

Elk share their range with deer and moose.

Numbers of elk have increased significantly since the 1960s and 1970s. This is due to a combination of good management, the availability of logged and burned-over habitat, and mild winters.

Large numbers of predators such as wolves, bears and humans can limit the size of elk populations. Coyotes may pose some threat to elk calves.

Early historical records reveal that elk were considered to be the most majestic of the large wild ungulates. Early aboriginal peoples on the prairies used the elk extensively for food, clothing and many other purposes.

In more recent times, elk remain in very high demand by today's hunters. Because elk prefer to live in the forest-agriculture fringe area, there sometimes has been conflict with local people. Some farmers and ranchers have experienced crop, grazing and hay depredation.

Status and Range

In North America elk are common in the mid-western and western United States. They are common in western Canada as far east as Manitoba.

In Saskatchewan, the population was estimated to be around 8,000 in 1993. The greatest concentration of elk in the Boreal Plain Ecozone is in the Porcupine Forest near Hudson Bay. However, populations in central Saskatchewan are being increased significantly by elk transplant programs.

Despite their increasing numbers, demand for elk by hunters and other outdoor enthusiasts greatly outstrips the available supply of these impressive animals.

Elk are most abundant in the Boreal Plain Ecozone. Local populations are also found in the Prairie Ecozone.

Within the last decade elk ranching has been established as an industry. Elk are presently farmed in order to sell their velvet-covered antlers to the Asian pharmaceutical trade.

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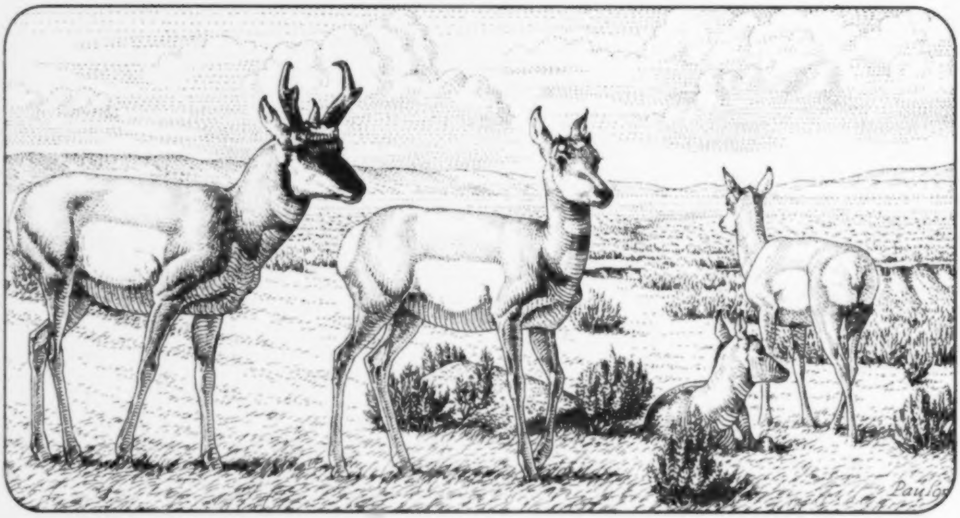
Banfield, A.W. 1974. *The Mammals of Canada*. Toronto: University of Toronto Press.

Pronghorn

(Antilocapra americana)



Description

Pronghorn are slender, deer-like animals. Males are 125–145 cm in length, weighing 45–63 kg. Females are slightly smaller. All bucks, or males, and some of the does, or females, have black horns that have a "prong" or bend near the top. The horns are unusual because only the black outer cover, or sheath, is shed each November, while the bone core is retained.

The pronghorn's outer coat is covered by long, brittle guard hairs. The back and upper sides of the body are tan in colour, while the belly is white. Both sexes have dark faces. However, the black face patch of the male tends to be larger. Pronghorns have brown, stubby tails and manes. The large circular area of white hair on the rump is called the "rosette." If a pronghorn feels threatened, its mane and the hair on its rump stand on end — a signal to other antelope of possible danger.

The most common sounds made by a pronghorn are a loud snort if alarmed or a soft blow that sounds like "cha-oo."

Habits

Pronghorns are curious and will approach new objects in their surroundings.

They tend to form herds. In the summer, herds consist of 5–20 animals; winter herds can exceed 300.

Although she generally prefers to belong to a herd, the female seeks privacy when it is time to give birth. She usually gives birth to two young on the open plains. Other than to nurse and to move them to new hiding places, the mother spends her time away from the fawns so she will not attract predators. The fawns curl up and remain motionless when their mother is away. They are well camouflaged because their fur is the same colour as the native grasses. A mother will quickly return to her young if she hears their cry or if she spots a predator nearby. Then she will either attempt to lure the predator away or fight it. A mother with her fawn(s) rejoins the herd when her young are 2–3 weeks old.

Food

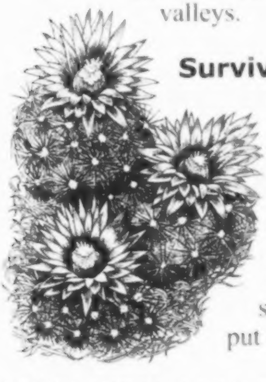
Forbs (leafy, non-woody plants that are not grasses) and some grasses make up most of a pronghorn's summer diet. In the winter, browse from shrubs such as sagebrush, rabbit brush and winter fat make up a significant proportion of the diet when other food sources are dead or buried under the snow.

The flowers and fruits of cacti are favourite foods.

Pronghorns feed on fall rye, winter wheat and wheat kernels left in the field after combining. One of their favourite crops is field peas.

Habitat

Pronghorns are recognized as a species of the plains. In Saskatchewan the large expanse of native grasslands in the southwest is their chief habitat. Pronghorns are also found in the surrounding farmlands. In winter, they seek food and protection from the wind and snow in coulees and river valleys.



Purple (pincushion) cactus, a favourite food

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Survival Strategies

Winter is the hardest time of the year for pronghorns. In the warmer seasons, they put on fat reserves. In winter, this fat provides energy to help keep them warm. To conserve energy when it is cold, pronghorns find shelter from cold winds, avoid deep snow and reduce their daily activities. They will migrate great distances to reach traditional winter ranges where there is shrubby cover (winter food) and less snow.

Quick Facts

- ✓ black pronged horns
- ✓ fastest land mammal in North America
- ✓ excellent eyesight
- ✓ order Artiodactyla (even-toed hoofed mammals); family Antilocapridae (pronghorns)
- ✓ Prairie Ecozone

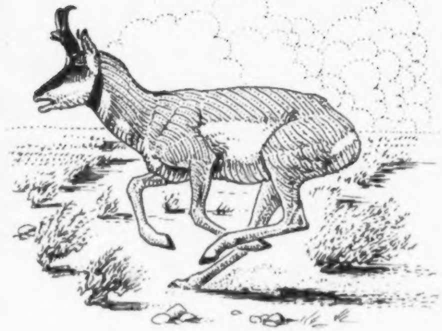
Pronghorns have keen senses of hearing and smell but it is their eyesight which makes them remarkable. Their large eyes magnify objects, enabling them to spot objects several kilometres away.

The pronghorn is the fastest land mammal in North America. It has been clocked at speeds of 80–100 km/h, but can only maintain this speed over short distances. At speeds of 55–65 km/h, antelope can travel close to 10 km before becoming tired.

Pronghorns tend to form herds. This increases the likelihood that any approaching predator will be seen, because there are more eyes scanning the landscape. A pronghorn communicates danger to others in the herd by spreading its rosette and bounding away.

Ecological Relationships

Before European settlement, pronghorns were closely associated with two species: the bison and the plains wolf. Bison ate grasses while the pronghorn fed on leafy plants. Both mammals were important prey species for the plains



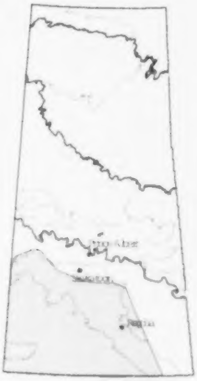
Pronghorn running

wolf. Some wildlife historians estimated that the pronghorn population (30–40 million) was as great, if not greater, than the enormous herds of bison that once roamed the plains. Today, the pronghorn-bison-wolf relationship has been replaced by a pronghorn-cattle-coyote relationship in southwestern Saskatchewan.

The life expectancy of pronghorns in Saskatchewan is about 3–4 years. However, their survival is very dependent upon weather conditions. Chief predators are coyotes and humans. Coyotes take adult pronghorns when snow is deep or when their prey is weakened by disease and starvation. Young fawns are susceptible not only to coyote but also bobcat and golden eagle predation.

Pronghorns were a food source for plains aboriginal peoples but probably not to the extent that bison were. Early fur traders and European settlers hunted these animals to supplement their diets of dried meats and cereal grains. Today, hunters and naturalists believe pronghorns are an important recreational resource.

During the Great Depression of the 1930s, some pronghorns were harvested to feed hungry people in eastern Canada. This program proved to be impractical and was soon ended.



Status and Range

In 1921, the estimated population of pronghorns in Saskatchewan was only 200 animals, most of which were in the extreme southwest corner of the province. Harsh winters, drought, uncontrolled hunting, loss of habitat to the plough and the construction of impassable fences all contributed to the demise of the great pronghorn herds. Fortunately, the enactment of hunting laws and a blossoming interest by ranchers to preserve and protect this species have helped to save it from extirpation.

Today's population in Saskatchewan is estimated at 20,000 animals. Herds of pronghorns most commonly range from Kerrobert in the northwest to Estevan in the southeast, in the Prairie Ecozone.

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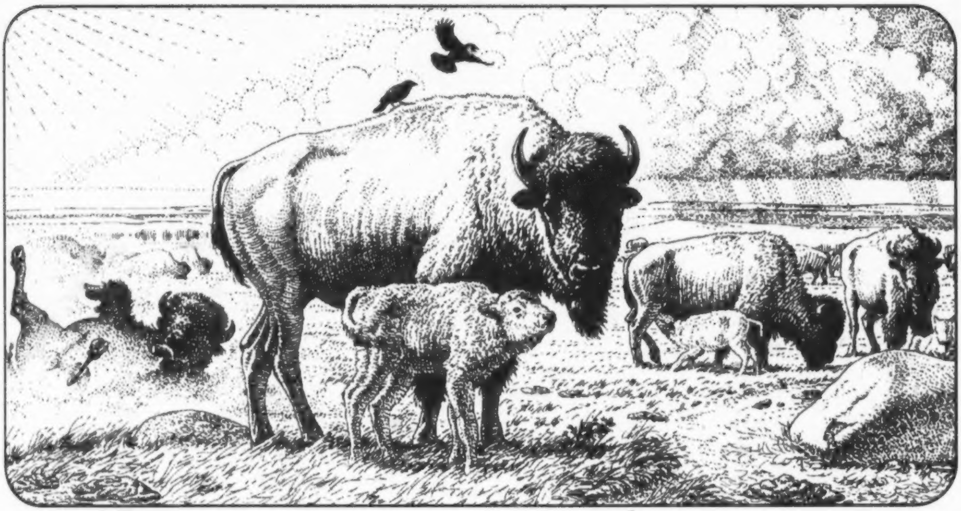
American Bison

(Bos bison)



Description

Bison are the largest land animals in Canada. Bison bulls (males) weigh 600–1,000 kg and may be as tall as 2 m at the shoulder. Cows (females) are generally smaller than bulls and, on average, measure 1.3 m tall at the shoulder.

Bison have short, curved horns. Their heads are large and they have a thick neck. They also have a massive hump on their shoulders which is covered in long, light brown fur. Other than the hump, bison are dark brown in colour. In winter, the fur on the head, neck, shoulders and front legs is about 20 cm long; the rest of their fur is about 10 cm long. In the spring, bison begin shedding. By summer, the fur on the front is about 10 cm long, whereas the back end is covered by much shorter fur.

There are two subspecies of bison: the plains bison (*Bos bison bison*) and the wood bison (*Bos bison athabascae*). Historically, plains bison lived on the prairies of North America; wood bison generally lived further north.

Habits

The peak breeding season for bison is July and August. Although male and female bison usually live separately, during the breeding season males will join a herd of cows. There the male will follow a cow around in hope of mating with her.

The gestation period is about 285 days. Most births occur between mid-April and early May. Twins are rare, for cows usually produce only one calf. At birth, bison calves are tawny orange in colour and lack a hump; they look much like a calf on a farm, except that young bison are larger. By the time they are 10–40 minutes old, bison calves are able to stand and nurse. Although they continue to nurse for up to a year, calves begin grazing when they are only one week old. At first, calves stay close to their mothers, but by three weeks, they begin playing tag and play-fighting with other calves in the herd. Calves leave their mothers at about a year of age. Female calves join a herd, while males join a smaller group of other males.

Bison live about 20 years.

Food

On the plains, bison eat grasses, sedges, lichen and berries. To get enough food, bison graze almost constantly and continually wander in search of more food.

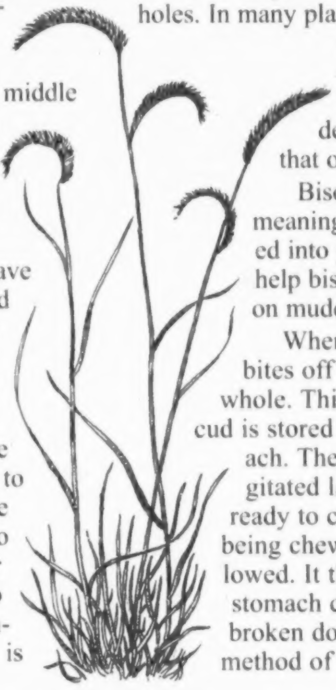
Wood bison tend to travel less. They eat grasses and sedges in the summer. In the winter months they consume more browse (twigs).

Survival Strategies

Bison have excellent senses of hearing and smell which inform them of potential danger. They intimidate intruders with their size. They have sharp horns to fend off predators. Young bison tend to be kept in the middle of the herd where the adults can protect them. If a herd of cows feels threatened, they will line up and form a wall to keep out an intruder.

Like many mammals, bison have two layers of fur: an underlayer and a long, thick, waterproof, outer layer. Air trapped within both layers of fur helps insulate the bison against cold, windy weather.

Even when snow covers the ground, bison must still be able to get at the grass to eat. They use their large noses like shovels to push the snow away or swing their heads from side to side to sweep the snow away. Using these methods, bison can move snow that is more than a metre deep.



Blue grama grass, a food of the bison

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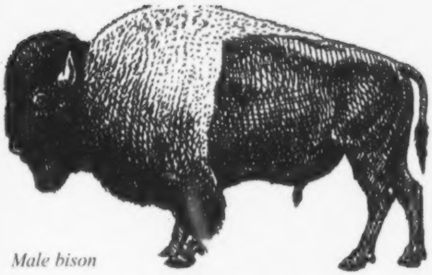
Quick Facts

- ✓ large, horned mammal
- ✓ mistakenly called buffalo
- ✓ order Artiodactyla (even-toed hoofed mammals); family Bovidae (bison, sheep, cattle, goats)
- ✓ historic distribution: primarily Prairie and Boreal Plain ecozones, with some in Boreal Shield and Taiga Shield ecozones
- ✓ current distribution: Boreal Plain Ecozone

In warm weather, bison are bothered by biting insects. They use their tails as fly swatters to help keep the insects away. Bison also rub against trees or large rocks to scratch themselves. They will also roll on the ground creating bare, bowl-like depressions called wallowing holes. In many places on the prairies, rubbing stones and wallowing holes can still be found, evidence of the many bison that once roamed there.

Bison have cloven hooves, meaning hooves that are divided into parts. Cloven hooves help bison to be sure-footed on muddy and rocky surfaces.

When a bison grazes, it bites off grass and swallows it whole. This unchewed food or cud is stored in part of the stomach. The stored food is regurgitated later when the bison is ready to chew its cud. After being chewed, the cud is swallowed. It then goes into a second stomach chamber where it is broken down further. This method of eating enables the



Male bison

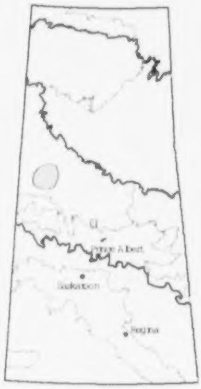
bison to maximize the nutrition it gets from hard-to-digest grasses.

Ecological Relationships

In the past bison behaviour has affected the prairie landscape. Bison curtailed tree and shrub growth by rubbing again them, causing the eventual death of some of their scratching posts. Perhaps less obvious was the effect of grazing pressure on prairie grasses. Without bison, shortgrass prairie species likely would have suffered from competition with taller species of vegetation.

When herds of bison roamed the prairies, predators such as the buffalo wolf and the plains grizzly preyed on the weak, sick and young. Cowbirds often followed bison, feeding on insects disturbed by the herds.

Aboriginal peoples on the prairies depended on the bison for food, tools and shelter. For example, bison hides were used to make teepee covers and clothing; fur was made into rope; intestines made into string; and horns made into cups, bowls and bows.



Status and Range

Before the mid-1800s, 30–70 million bison ranged over North America. When settlers came from Europe, however, the bison were destroyed in great numbers. By 1900, less than 1,000 plains bison were left in North America and were in danger of becoming extinct.

Today, there are two herds of free-roaming bison in Saskatchewan. Both reside within the Boreal Plain Ecozone and, somewhat surprisingly, are plains bison rather than wood bison. One herd is in the Cold Lake Air Weapons Range; the other herd is found within Prince Albert National Park.

Further Reading

Banfield, A.W.F. 1974. *The Mammals of Canada.* Toronto: University of Toronto Press.

Appendix 1:
Saskatchewan Mammals

Genus and Species	Common Name	Status*
Order Insectivora (Insect-eaters)		
Sorex cinereus	common shrew	very common
Sorex monticolus	dusky or montaine shrew	very common
Sorex palustris	water shrew	very common
Sorex arcticus	arctic shrew	very common
Sorex hoyi	pygmy shrew	very common
Sorex haydeni	prairie shrew	rare-uncommon to common
Blarina brevicauda	northern short-tailed shrew	very common
Order Chiroptera (Bats)		
Myotis lucifugus	little brown bat	very common
Myotis septentrionalis	northern long-eared bat	common
Myotis evotis	western long-eared bat	rare-uncommon
Myotis ciliolabrum	small-footed bat	rare-uncommon
Lasionycteris noctivagans	silver-haired bat	very uncommon
Eptesicus fuscus	big brown bat	very common
Lasiurus borealis	red bat	very common
Lasiurus cinereus	hoary bat	very common
Order Lagomorpha (Rabbits and Hares)		
Sylvilagus floridanus	eastern cottontail	rare-uncommon
Sylvilagus nuttallii	Nuttall's cottontail	common
Lepus americanus	snowshoe hare	very common
Lepus townsendii	white-tailed jack rabbit	common
Order Rodentia (Gnawing Mammals)		
Tamias minimus	least chipmunk	very common
Marmota monax	woodchuck	very common
Spermophilus richardsonii	Richardson's ground squirrel	very common
Spermophilus tridecemlineatus	thirteen-lined ground squirrel	very common
Spermophilus franklinii	Franklin's ground squirrel	very common
Cynomys ludovicianus	black-tailed prairie dog	rare
Sciurus carolinensis	gray squirrel	exotic
Sciurus niger	fox squirrel	rare-uncommon
Tamiasciurus hudsonicus	red squirrel	very common
Glaucomys sabrinus	northern flying squirrel	very common
Thomomys talpiodes	northern pocket gopher	very common
Perognathus fasciatus	olive-backed pocket mouse	rare-uncommon
Dipodomys ordii	Ord's kangaroo rat	rare
Castor canadensis	beaver	very common
Peromyscus maniculatus	deer mouse	very common
Peromyscus leucopus	white-footed mouse	rare-uncommon to common
Onychomys leucogaster	northern grasshopper mouse	rare-uncommon
Clethrionomys gapperi	red-backed vole	very common
Phenacomys intermedius	heather vole	very common
Microtus pennsylvanicus	meadow vole	very common
Microtus xanthognathus	yellow-cheeked or taiga vole	very common
Microtus ochrogaster	prairie vole	common
Lemmiscus curtatus	sagebrush vole	rare-common
Ondatra zibethicus	muskrat	very common
Synaptomys borealis	northern bog lemming	common
Rattus norvegicus	Norway rat	exotic
Mus musculus	house mouse	exotic
Zapus hudsonius	meadow jumping mouse	very common
Zapus princeps	western jumping mouse	common
Erethizon dorsatum	porcupine	very common

Genus and Species	**Common Name**	**Status***
Order Carnivora (Flesh-eaters)		
Canis latrans	coyote	very common
Canis lupus	wolf	common
Alopex lagopus	arctic fox	rare-uncommon
Vulpes vulpes	red fox	very common
Vulpes velox	swift fox	extremely rare
Ursus americanus	black bear	very common
Procyon lotor	raccoon	very common
Martes americana	marten	very common
Martes pennanti	fisher	common to very common
Mustela erminea	ermine, short-tailed weasel	very common
Mustela nivalis	least weasel	very common
Mustela frenata	long-tailed weasel	rare-uncommon to common
Mustela vison	mink	very common
Gulo gulo	wolverine	rare-uncommon to common
Taxidea taxus	badger	rare-uncommon to common
Mephitis mephitis	striped skunk	very common
Lutra canadensis	river otter	very common
Puma concolor	cougar	rare to rare-uncommon
Lynx canadensis	lynx	very common
Lynx rufus	bobcat	rare-uncommon to common
Order Artiodactyla (Even-toed Hoofed Mammals)		
Cervus elaphus	elk	common
Odocoileus hemionus	mule deer	very common
Odocoileus virginianus	white-tailed deer	very common
Alces alces	moose	very common
Rangifer tarandus groenlandicus	barren-ground caribou	rare-uncommon
Rangifer tarandus caribou	woodland caribou	rare-uncommon
Antilocapra americana	pronghorn	common
Bos bison bison	plains bison	rare-uncommon

***Status**:
Very common: more than 100 occurrences in Saskatchewan – widespread and abundant, but may be rare in parts of its range.
Common: more than 100 occurrences in Saskatchewan – generally widespread and abundant, but may be rare in parts of its range.
Rare-uncommon: 21 to 100 occurrences in Saskatchewan – may be rare and local throughout the province or may occur in a restricted provincial range (may be abundant in places).
Rare: 6 to 20 occurrences in Saskatchewan or few remaining individuals.
Extremely rare: 5 or fewer occurrences in Saskatchewan, or very few remaining individuals.
Exotic: not native to Saskatchewan.

Appendix 2:

Mammal Viewing Sites

Badger

- not often seen by casual observers
- typically live in dry, open areas
- good viewing potential in Cypress Hills, Douglas, Danielson, Saskatchewan Landing, Buffalo Pound, Rowan's Ravine, Echo Valley and Moose Mountain provincial parks

Bats

- readily observable
- best opportunities for viewing are in late evening over open water
- little brown bat: over Wascana Lake near the Legislative Building (Regina); over Loch Leven, at the back side of the Cypress Park Resort, at the shower house facilities in the Terrace campground or at the West Block Ranger Station (Cypress Hills Interprovincial Park); in the old homestead and surrounding trees (Nicolle Homestead in Buffalo Pound Provincial Park)
- small-footed bat: in badland formations along the South Saskatchewan River valley, within about 50 km of the Alberta border.
- big brown bat: over Wascana Lake near the Legislative Building (Regina)
- hoary bat: along Battle Creek near Fort Walsh or at the West Block Ranger Station (Cypress Hills Interprovincial Park)
- undetermined species: in flight on summer evenings in Kiwanis Park (Saskatoon)
- beware bats acting strangely or those on the ground

Bear, Black

- readily observable
- best opportunities at dawn and dusk
- garbage dumps in the forested parts of the province
- good viewing opportunities in Meadow Lake, Narrow Hills, Duck Mountain, Greenwater Lake, Candle Lake and Lac La Ronge provincial parks

Beaver

- readily observable
- best opportunities at dawn and dusk in or near ponds, sloughs, lakes and rivers
- excellent viewing locations include the Highland Interpretive Trail or Boy Scout Camp Area (Cypress Hills Interprovincial Park); the Sunset Trail (Douglas Provincial Park), the Highbush Interpretive Trail, long loop (Greenwater Lake Provincial Park); Condie Nature Refuge (near Regina) and Beaver Lake Trail (Moose Mountain Provincial Park)

Bison, American

- a captive herd can be seen at the Nicolle Flats Interpretive Area in Buffalo Pound Provincial Park
- viewing location for a free-ranging herd is Prince Albert National Park (Southwest corner); consult Park personnel for directions and precautions; not accessible by automobile

Bobcat

- reclusive habits makes viewing unlikely
- river valleys in southern Saskatchewan
- viewing potential in Cypress Hills, Moose Mountain, Duck Mountain, Greenwater Lake, Meadow Lake, Narrow Hills and Candle Lake provincial parks

Caribou

- infrequently seen by casual observers
- viewing potential near La Ronge and Montreal Lake (especially in the Bittern Lake area); also during winter in extreme northeast corner of the province

Chipmunk, Least

- readily observable
- common in Meadow Lake, Greenwater Lake, Candle Lake, Narrow Hills and Duck Mountain provincial parks, as well as other campsites in the Aspen Parkland Ecoregion

Cottontail, Nuttall's

- infrequently seen by casual observers
- Cypress Hills and Danielson provincial parks

Cougar

- reclusive habits makes viewing unlikely
- typically found in remote areas with little human disturbance
- river valleys in southern Saskatchewan, especially the Qu'Appelle River valley
- confirmed sightings in Cypress Hills, Duck Mountain and Wildcat Hill Wilderness provincial parks

Coyote

- readily observable
- best viewing opportunities exist in open grassland areas or lightly wooded regions
- good viewing areas include Cypress Hills, Saskatchewan Landing, Moose Mountain, Douglas, Danielson, Buffalo Pound and Rowan's Ravine provincial parks

Deer, Mule

- readily observable
- southwestern Saskatchewan offers most of the best viewing opportunities
- Big Muddy valley south of Bengough, Great Sand Hills (located west of Swift Current), Manitou Sand Hills (located near Marsden and Neilburg), and Webb Sand Hills (about 8 km north of Webb)
- excellent viewing potential in Cypress Hills, Buffalo Pound, Douglas, Danielson and Saskatchewan Landing provincial parks

Deer, White-tailed

- readily observable
- Prairie Ecozone offers most of the best viewing opportunities, especially near aspen bluffs
- often can be seen near the bison pen during feeding time at the Nicolle Flats Interpretive Area in Buffalo Pound Provincial Park
- excellent viewing potential in Candle Lake, Cypress Hills, Duck Mountain, Echo Valley, Greenwater Lake, Moose Mountain and Pike Lake provincial parks

Elk

- seen occasionally by casual observers
- Wapiti 6 km ski trail in Prince Albert National Park
- Candle Lake, Cypress Hills, Duck Mountain, Greenwater Lake, Meadow Lake, Moose Mountain and Narrow Hills provincial parks

Fisher

- reclusive habits makes viewing unlikely
- potential viewing locations generally include areas with mature coniferous forest
- viewing potential in Lac La Ronge, Meadow Lake, Narrow Hills and Wildcat Hill Wilderness provincial parks

Fox, Red

- seen occasionally by casual observers
- most often seen in the Prairie Ecoregion of southern Saskatchewan

Fox, Swift

- seen occasionally by casual observers
- East Block, Grasslands National Park

Gopher, Northern Pocket

- reclusive habits makes viewing unlikely
- mounds often seen on agricultural land, especially in Moist Mixed Grassland Ecoregion

Hare, Snowshoe

- often seen by casual observers
- most obvious in the fall or spring before seasonal molt
- most wooded areas of the province,

including Wascana Park (Regina) and Narrow Hills Provincial Park

Lynx

- reclusive habits makes viewing unlikely
- viewing potential in Candle Lake, Cypress Hills, Lac La Ronge, Meadow Lake, Narrow Hills and Wildcat Hill Wilderness provincial parks

Marten

- reclusive habits makes viewing unlikely
- West Block of Cypress Hills Provincial Park; northern provincial parks such as Clearwater River, Lac La Ronge, Meadow Lake and Narrow Hills; Prince Albert National Park

Mink

- reclusive habits makes viewing unlikely
- wetlands throughout the province

Moose

- seen occasionally by casual observers
- near wetlands
- excellent viewing opportunities in both the Centre and West Blocks of Cypress Hills Provincial Park; ample viewing opportunities in Clearwater River, Duck Mountain, Greenwater Lake, Lac La Ronge, Meadow Lake, Moose Mountain, Narrow Hills, and Wildcat Hill Wilderness provincial parks

Mouse, Deer

- seen occasionally by casual observers
- numerous throughout most of the province
- beware hantavirus

Muskrat

- readily observable
- wetlands throughout the province

Otter, River

- sightings are uncommon
- good winter viewing opportunities at First Narrows of Waskesiu Lake, about a 24 km drive from Waskesiu townsite (Prince Albert National Park)
- viewing opportunities in Clearwater River, Lac La Ronge, and Meadow Lake provincial parks

Porcupine

- seen often by casual observers
- widespread distribution
- easily seen during the winter in deciduous trees

Pronghorn

- readily observable
- often seen on the grasslands of southwestern Saskatchewan
- near Cypress Hills Provincial Park; Frenchman River valley or near townsite of Val Marie
- good viewing opportunities in Saskatchewan Landing and Douglas provincial parks; Grasslands National Park

Raccoon

- seen occasionally by casual observers
- garbage dumps in southern and central Saskatchewan
- beware raccoon roundworm

Rat, Ord's Kangaroo

- reclusive habits makes viewing unlikely
- southwestern Saskatchewan
- Great Sand Hills (these are west of Swift Current), Burstall Sand Hills (near Burstall), Webb Sand Hills (near Webb) and Westerham Sand Hills (near Leader)

Shrew, Masked

- reclusive habits makes viewing unlikely

Skunk, Striped

- seen occasionally by casual observers
- most often observed in the evening and early morning
- widespread distribution

Squirrel, Fox

- readily observable
- one of the best viewing locations is Buffalo Pound Provincial Park

- Avonlea, Oxbow, Redvers, Regina, Windthorst or Thunder Creek region near Moose Jaw; also Greenwater Lake Provincial Park

Squirrel, Northern Flying
- reclusive habits makes viewing unlikely
- potential viewing locations are Clearwater River, Lac La Ronge, Meadow Lake, Greenwater Lake and Narrow Hills provincial parks

Squirrel, Red
- noisy, plucky habits makes observation easy
- abundant
- good viewing locations include Candle Lake, Cypress Hills, Duck Mountain, Greenwater Lake, Lac La Ronge, Makwa Lake, Meadow Lake and Narrow Hills provincial parks

Squirrel, Richardson's Ground
- noisy, bold habits makes observation easy
- common in open areas with short vegetation
- excellent viewing opportunities in Buffalo Pound, Douglas, Danielson, Cypress Hills and Saskatchewan Landing provincial parks

Vole, Meadow
- seen occasionally by casual observers
- throughout the province in low, moist areas

Weasel, Long-tailed
- reclusive habits makes observation unlikely
- good viewing potential in Douglas, Echo Valley, Good Spirit, Moose Mountain, and Pike Lake provincial parks

Wolf
- reclusive habits makes viewing unlikely
- Prince Albert National Park, especially in fall and winter
- potential viewing locations are Clearwater River, Lac La Ronge, Meadow Lake, Narrow Hills and Wildcat Hill Wilderness provincial parks

Wolverine
- reclusive and unpredictable habits makes viewing unlikely
- range includes Clearwater River and Lac La Ronge provincial parks

Woodchuck
- readily observable
- potential viewing locations include Greenwater Lake, Lac La Ronge and Meadow Lake provincial parks

Appendix 3

An Ecological Perspective

What is Ecology?

Ecology is the science that studies relationships between living things and their environment. Traditionally, ecologists have studied the relationships between plants, wildlife, soils, water, climate, sources of energy and other factors, often without considering human interaction with the ecosystem. More recently, however, ecologists are expanding their studies to include human interactions and relationships with other parts of ecosystems.

What is an Ecosystem?

An ecosystem is the basic unit of ecological science that defines the area studied by the ecologist. An ecosystem is made up of living things (the biotic component) and non-living things (the abiotic component), each interacting with the other. The biotic (living) component includes all the organisms in that ecosystem. The biotic component of a mixed prairie ecosystem might include western porcupine grass, western wheatgrass, blue grama grass, pasture sage, prairie crocus, prickly pear cactus, chokecherry, badger, northern pocket gopher, pronghorn, sage grouse, various species of amphibians and reptiles, bugs, beetles, fungi, microorganisms and more. There are few if any complete inventories of the biotic component of an ecosystem, because many species are usually involved, even if the ecosystem itself is physically quite small. The abiotic component of an ecosystem includes things such as rainfall, wind, sunlight, soil, rocks, land, air, minerals, temperature and water.

Ecosystems occur at all scales and sizes, and may be natural as well as modified by humans. An ecosystem can be small or large. A fallen log can be studied as an ecosystem, as can ponds, watersheds, forests or grasslands. Ecosystems interact with each other and each can be seen as part of a nested hierarchy in which smaller ecosystems join together to become larger ones. Some scientists regard the whole world as one ecosystem.

Ecosystems have physical boundaries across which organisms, materials, and energy may enter or leave. Thus, ecosystems are dynamic because the elements of which they are made change over time, and the various biotic and abiotic components affect each other. This is one reason why ecosystems are so complex. For example, grazing by cattle can affect what species of grass best survive in a pasture. Changes in global temperature can affect patterns of wind and precipitation, and these changes in climate can affect where species live and thrive. Ecosystems can change over the short term, such as when an outbreak of tent caterpillars eats all the leaves in a stand of aspen. Other leaf-eating species, as well as those that live in the canopy, are affected by the loss of these leaves. Ecosystems can change over the long term, such as in the process of succession by which a pond becomes a marsh and then fills in to become a meadow. The time scale of ecosystem change can range from seconds to eons.

Ecosystems provide ecological services. Ecological services are benefits supplied to human societies by natural ecosystems. A few of the many examples of benefits that healthy ecosystems provide are purification of air and water, production of fertile soils, recycling of wastes, buffering the effects of droughts and floods, and helping to stabilize the Earth's climate. Healthy ecosystems are vital to the well-being of all life on this planet.

Ecosystem Processes

Ecosystems are not self-contained units. Energy derived from the sun constantly enters an ecosystem. Various elements and compounds are continuously recycled both within and between ecosystems.

Energy Flow

Most ecosystems are driven by the sun's energy. Green plants use that energy to photosynthesize the food they need to grow and reproduce. In the process, green plants directly or indirectly feed all other organisms. Because green plants produce food for other levels in the food web, they are called "producers." Organisms that eat green plants are called "consumers." "Primary consumers" feed only on plants. "Secondary consumers" feed on the plant-eaters and are carnivores. "Tertiary consumers," also carnivores, feed on the secondary consumers, and so on.

As an example, consider an ecosystem that supports white-tailed deer, coyotes and wolves. White-tailed deer (primary consumers) feed on green plants (producers). Coyotes (secondary consumers) prey on white-tailed deer fawns. In turn, wolves (tertiary consumers) prey on coyotes.

This structure is much simpler than most real-life situations. Wolves would (and do) eat both coyotes and white-tailed deer. Most ecosystems contain omnivores, decomposers and other organisms that do not fit neatly into a single level. Nonetheless, this concept does help us understand how energy flows through an ecosystem.

Ecozones: the ecozone lies at the top of the ecological hierarchy, and as such, it defines, on a subcontinental scale, the major physiographic features of the country (e.g., Canadian Shield, Great Plains, Rocky Mountains).

Ecoregions: subdivisions of the ecozone, characterized by distinctive climatic zones or regional landforms, and constitute the major bridge between the subcontinental scale ecozones and the more localized ecodistricts.

Ecodistricts: subdivisions of ecoregions, characterized by distinctive assemblages of landform, relief, surficial geological material, soil, water bodies, vegetation and land uses. Also referred to as Landscape Areas in Saskatchewan.

Biogeochemical and Nutrient Cycles

The sun continuously provides the Earth with abundant energy. Other necessities of life, however, are less plentiful.

Many elements or compounds, such as water, carbon, nitrogen, phosphorus and sulfur, are in limited supply. These elements or compounds are found in all living things. Without them, life as we know it could not exist. Carbon, nitrogen, phosphorus and sulfur become locked in the bodies or wastes of plants and animals, in rocks and other deposits, or in other unusable forms. Water eventually flows into the oceans and evaporates into the atmosphere.

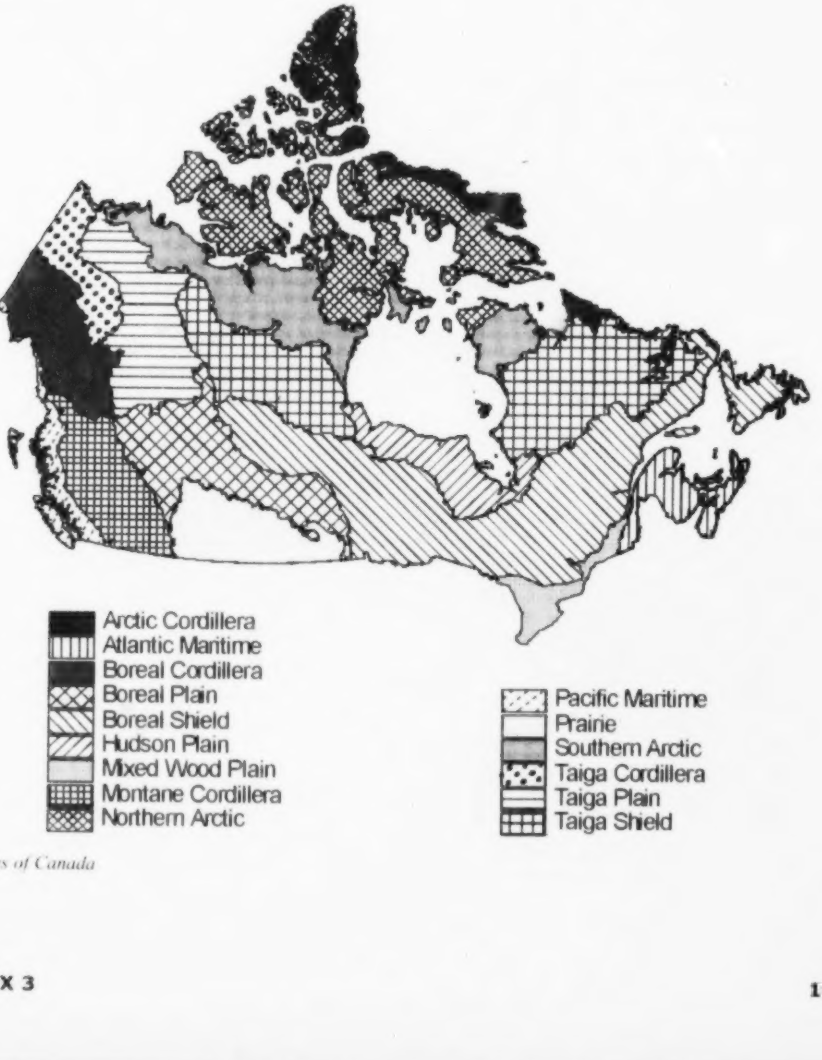
Recycling such necessary compounds makes them available again and again, in usable forms, to living things. Without carbon compounds there would be no protoplasm, without nitrogen there would be no proteins, without phosphorus there would be no DNA. Without a functioning water cycle, much of the earth could not support life. Biogeochemical cycles, so-called because they involve biological, geological and chemical processes, are essential to healthy ecosystems.

Classification of Ecosystems

To help us better understand our world, people have tended to classify everything from individual organisms to very large ecological areas. Ecological land classification (ELC) is a way of arranging different types and scales of ecosystems into groups based on their similarities and differences. It involves classifying distinctive areas of the Earth's surface based on various factors such as geology, landforms, soils, vegetation, climate, wildlife, water and human activities.

The ELC system of Canada organizes our country's landscapes into ecozones, ecoregions and landscape units or ecodistricts. In this system, there are 15 terrestrial ecozones. These ecozones are, in turn, broken down into more than 150 ecoregions. Ecoregions themselves are further divided into more than 5,000 landscape areas (also called ecodistricts).

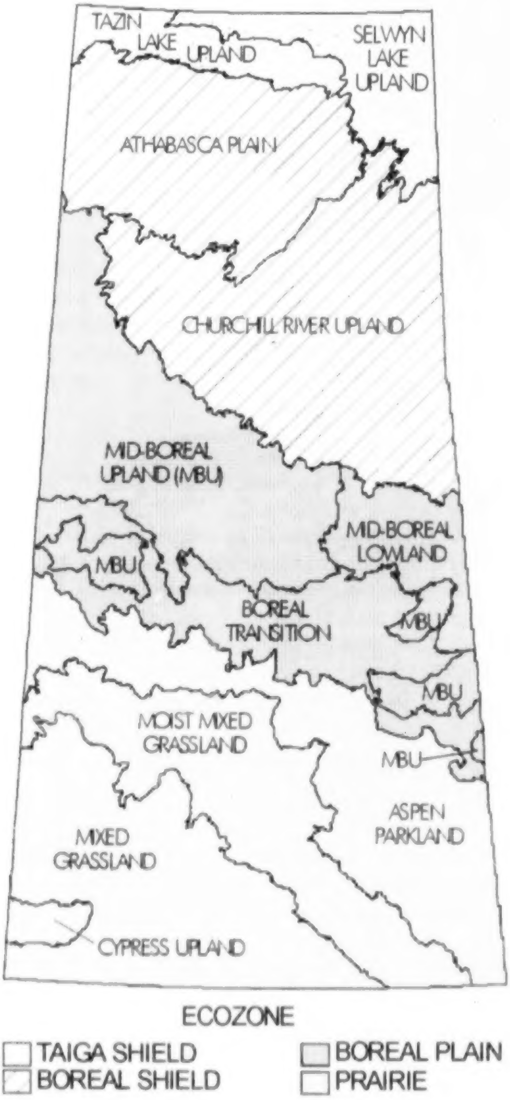
Ecozones are the broadest level of classification, and so are also the largest. Ecoregions contain more ecological detail than do ecozones and are smaller in size. Landscape areas (ecodistricts) contain the most ecological detail of all three categories and, typically, are also the smallest.


■ Arctic Cordillera
▥ Atlantic Maritime
■ Boreal Cordillera
▩ Boreal Plain
▧ Boreal Shield
▨ Hudson Plain
□ Mixed Wood Plain
▦ Montane Cordillera
▩ Northern Arctic
░ Pacific Maritime
□ Prairie
▒ Southern Arctic
░ Taiga Cordillera
▤ Taiga Plain
▦ Taiga Shield

The Ecozones of Canada

ELC in Saskatchewan

There are four ecozones in Saskatchewan: Prairie, Boreal Plain, Boreal Shield, and Taiga Shield. These ecozones correspond reasonably well with the prairie, southern boreal forest, Canadian Shield and northern subarctic portions of the province, respectively. Each Saskatchewan ecozone is further subdivided into between two and four ecoregions. There are 157 landscape areas across the province.


TAZIN LAKE UPLAND
SELWYN LAKE UPLAND
ATHABASCA PLAIN
CHURCHILL RIVER UPLAND
MID-BOREAL UPLAND (MBU)
MID-BOREAL LOWLAND
MBU
BOREAL TRANSITION
MBU
MBU
MOIST MIXED GRASSLAND
MBU
ASPEN PARKLAND
MIXED GRASSLAND
CYPRESS UPLAND
ECOZONE
TAIGA SHIELD
BOREAL SHIELD
BOREAL PLAIN
PRAIRIE

The Ecozones and Ecoregions of Saskatchewan

Appendix 4

Overview of the Ecozones/Ecoregions in Saskatchewan

The following sections provide a brief description of Saskatchewan's four ecozones and 11 ecoregions, with emphasis on the mammals. For the most part, only those mammals that have been described in this book are mentioned. For more detailed information in the ecozones and ecoregions please refer to *The Ecoregions of Saskatchewan*, by D.F. Acton, G.A Padbury and C.T. Stushnoff.

Prairie Ecozone

Grasslands occupy a vast area of North America, from the Rocky Mountains in the west to the deciduous forests on the east, and from the Gulf of Mexico in the south to the coniferous forest on the north.

In Saskatchewan, the Prairie Ecozone extends north from the United States border to the boreal forest, from the Alberta border to the Manitoba border. It makes up about one-third of the province. The northern boundary of the ecozone runs in a northwesterly direction from near Kamsack in the east to just north of Lloydminster in the west. It is characterized by a flat to gently rolling landscape dominated by grasslands and aspen parkland, with a small island of montane forest in the Cypress Hills.

Climate

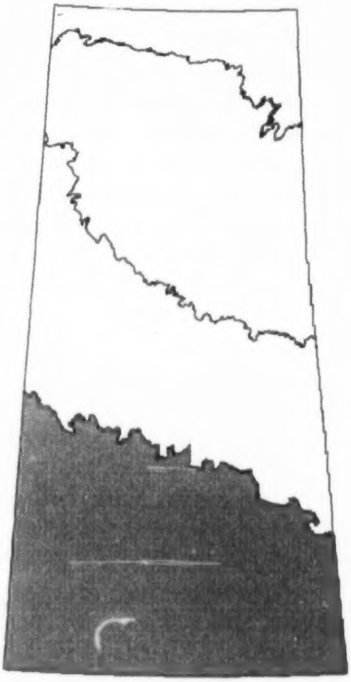
The climate in the Prairie Ecozone ranges from semiarid in the southwest of the province to humid continental in the aspen parkland and Cypress Hills. The winters are long and cold; the summers are short and hot. Moisture is meager in the semiarid southwest (about 352 mm), whereas more precipitation falls on the areas further north and east.

Landforms

Most everyone is familiar with the "flat prairie" landscape but all is not flat in the Prairie Ecozone. There are rolling hills, steep hills, sand dunes, valleys, coulees, potholes and other bodies of water.

Human Activity

The Prairie Ecozone, both in Saskatchewan and in Canada as a whole, has been described as the most human-altered region in Canada. Comprising much of Canada's breadbasket, the major



The Prairie Ecozone of Saskatchewan

land use of Saskatchewan's Prairie Ecozone is agriculture. This area produces grains, oilseeds and livestock. Other major activities are mining and oil and gas production.

Approximately 84% of Saskatchewan's population lives in the Prairie Ecozone. Most live in urban centres. Ten of the province's 12 cities are located in this ecozone: Regina, Saskatoon, Lloydminster, Swift Current, Moose Jaw, Estevan, Yorkton, North Battleford, Weyburn and Humboldt.

Vegetation

There are several types of grasslands in Saskatchewan:

- Mixed-grass grassland is a mixture of medium-height grasses, short grasses and sedges. Typical mid-grasses include needle-and-thread, western porcupine grass, western wheatgrass and northern wheatgrass. Short grasses and sedges include blue grama grass, June grass and thread-leaf sedge.
- Fescue prairie requires more moisture than mixed prairie and is found along the northern fringes of the prairie, as well as in the Cypress Hills. Typical grasses include plains rough fescue, western porcupine grass, wild oatgrass and Hooker's oatgrass.
- Sandhill grasslands on sand deposits and dunes harbour some different species of grass. Common grasses here include sand grass, Indian rice, sand dropseed and Canada wild rye.

Aspen is the main tree species in this ecozone. White spruce and lodgepole pine occur in the Cypress Hills. Forbs (non-woody plants that are not grasses or sedges) and shrubs also grow in the ecozone.

Wildlife

Birds living in this ecozone include ferruginous hawk, sage grouse, American avocet and burrowing owl.

Historically, the prominent mammal species on the prairie was the bison. The pronghorn ranged the open plains and into the aspen parkland. Elk grazed on the grassland around the edges of aspen groves. The wolf was the main predator of deer and elk. Settlement and widespread cultivation of the grasslands caused some species to come near the brink of extinction (as in the case of bison) or to currently occupy a small portion of their former range.

An abundance of assorted mice and voles inhabit the matted vegetation in unburned or ungrazed grassland. Richardson's ground squirrel forms extensive colonies on knolls, gravel ridges and overgrazed areas. The northern pocket gopher spends most of its life underground, feeding on succulent roots in pastures and haylands; its mounds of soil become an annoyance during haying. Coyote, red fox and the re-introduced swift fox feed chiefly on rodents, birds and insects. The badger feeds predominantly on ground squirrels, which it captures by digging. The snowshoe hare inhabits aspen groves during the day, emerging to feed at night. The striped skunk reaches its highest densities in agricultural areas, and the woodchuck has also prospered as a result of agricultural and forestry practices.

Other species that currently live in this ecozone include the mule deer, Ord's kangaroo rat, Richardson's ground squirrel and fox squirrel. In Canada, black-tailed prairie dogs are found only in the Prairie Ecozone of Saskatchewan.

Ecoregions of the Prairie Ecozone

The Prairie Ecozone is divided into four ecoregions: Mixed Grassland, Cypress Upland, Moist Mixed Grassland and Aspen Parkland ecoregions.

Cypress Upland Ecoregion

The Cypress Upland Ecoregion is a typical plateau with steeply sloping escarpments and numerous valleys and coulees that rises abruptly above the surrounding plains. Vegetation at the base of the upland is dominated by mixed grasslands. With a rise in elevation, the vegetation changes to a submontane fescue prairie on the south-facing slopes and, finally, at the upper elevations, to a mix of lodgepole pine, white spruce and aspen, along with patches of fescue prairie.

The ecoregion has been altered by agricultural, logging and fire.

Because of the diversity of habitat, the Cypress Upland Ecoregion supports a large variety of mammals. Pronghorn are common on the grasslands, mule and white-tailed deer are common in wooded coulees, and moose and elk inhabit the forested hills and valleys. Other important grassland species include Richardson's ground squirrel, thirteen-lined ground squirrel and northern pocket gopher. Predators on these species include red fox and coyote. The striped skunk and badger are also present, but less common.

The woodlands provide food and shelter to small mammals such as porcupine and least chipmunk. Although not abundant, lynx and bobcat also live here. Shrub and wetland areas provide shelter to the snowshoe hare. Along the rivers and streams live many of the fur-bearing mammals such as beaver, muskrat, mink and least weasel.

Historically, bison herds grazed the plateau and surrounding plains. Cougars, wolves and black and grizzly bears lived in the woodlands.

Mixed Grassland Ecoregion

Wheatgrasses and speargrasses (midgrasses) are the dominant grasses of this ecoregion, but blue grama grass (short grass) is also an important component. Unlike the Moist Mixed Grassland Ecoregion, aspen rarely occur in association with local wetlands.

Agriculture has not modified the natural landscape of this ecoregion to the extent that it has in the aspen parkland and the moist mixed grassland. Fifty percent of the ecoregion has been cultivated. Ranching also occurs.

The mammals that occur in this ecoregion are essentially the same as those described for the Moist Mixed Grassland Ecoregion.

Moist Mixed Grassland Ecoregion

Wheatgrasses and speargrasses (midgrasses) are the dominant grasses of this ecoregion. Aspen commonly occur in association with local wetlands.

Agriculture has drastically modified the natural landscape in this ecoregion, with approximately 80% of the ecoregion under cultivation.

Mammals in this ecoregion include the big brown bat, porcupine, meadow vole, deer mouse, masked shrew, northern pocket gopher, Richardson's ground squirrel, coyote, striped skink, least weasel, red fox, mule and white-tailed deer, and pronghorn. Bison once roamed here.

Aspen Parkland Ecoregion

In its native state, the Aspen Parkland Ecoregion is characterized by a mosaic of aspen groves and fescue grasslands. It represents a zone of transition between the open grasslands of the south and the continuous forests of the north. This ecoregion is named after its unique pattern of native vegetation, where aspen groves occur on the moister sites, such as north-facing slopes and depressions, while grasslands occur on the drier hilltops and south-facing slopes. The pattern changes across the region, with gradual expansion of grassland toward the southern edge and more continuous aspen cover toward the north or on north-facing regional slopes and at higher elevations. This unique vegetation pattern has formed in response to climate, geology and fire.

This ecoregion has been drastically altered by agricultural use, as 80% of the ecoregion is cropland.

Mule deer and elk were common before settlement, but now are largely replaced by white-tailed deer. The cover provided by the aspen stands with their dense shrub understory, combined with the high nutritional value of agricultural crops common in the region, provide excellent habitat for these deer. Moose and pronghorn also occur in the area.

Other mammals include the red squirrel, fox squirrel, Richardson's ground squirrel, least chipmunk, woodchuck, porcupine, northern pocket gopher, least weasel, mink, badger, bobcat, raccoon, shrews and bats. The snowshoe hare is a dominant mammal of the aspen groves. Chief predators are the coyote and red fox. Cougar are rare but are believed to range over this ecoregion. Striped skunks are common on the aspen edges.

Although beaver are more characteristic of the boreal plain, they inhabit streams and large waterbodies if an aspen or willow food supply is convenient. The muskrat is the dominant mammal of sloughs and marshes. It consumes roots and bulbs of aquatic plants, helping to keep sloughs more open.

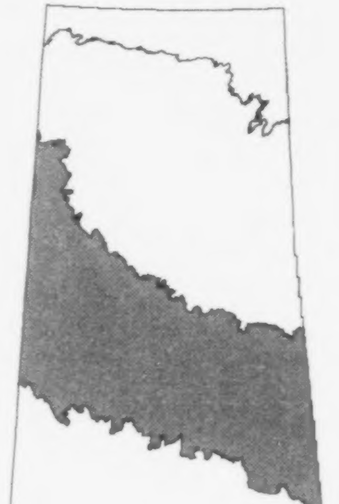
Boreal Plain Ecozone

The Boreal Plain Ecozone extends across Canada from Manitoba to British Columbia. Most of this ecozone is found in Alberta and Saskatchewan.

In Saskatchewan, this ecozone extends north from the Prairie Ecozone to the Boreal Shield Ecozone, between the Alberta and Manitoba borders. It comprises approximately 27% of the province. The northern boundary runs in a southeasterly direction from approximately 250 km south of the Northwest Territories border in the west to just south of Creighton in the east. Most of the ecozone is characterized by boreal forest. Agricultural lands make up about 25% of the ecozone and are concentrated along its southern boundary.

Climate

The climate in the Boreal Plain Ecozone varies with location. Lower elevations found in the southern part of this ecozone have a humid continental climate. Higher elevations in the more northerly regions have a subarctic climate. Winters are long, cold and snowy; summers are short, warm and moist.



The Boreal Plain Ecozone of Saskatchewan

Landforms

This ecozone is essentially a level to gently rolling plain. Rivers cross the plain, eventually flowing into Hudson Bay. The lowest areas are in the northeast, within the Mid-boreal Lowland Ecoregion. There are many uplands throughout this ecozone.

Human Activity

About 72% of the ecozone is covered with forests, and about half of this is considered to be productive commercial forest. Forests are harvested mostly for wood fiber to make pulp and paper. Prince Albert and Meadow Lake each have a large mill.

Agricultural land covers about 16% of the Boreal Plain Ecozone. The climate and soils of the southern part of this ecozone are suited to cereal, oilseed, pulse and hay crops. Livestock production is common in this area.

There is oil and gas development and some mining.

Most commercial fishing in Saskatchewan occurs in this ecozone. The Boreal Plain Ecozone is the most significant in the province for trapping and outfitting services.

Approximately 15% of Saskatchewan's population lives in the Boreal Plain Ecozone.

Vegetation

Generally, this ecozone is covered with coniferous forest or a mixture of deciduous and coniferous trees (mixedwood forest). The proportion of conifers typically increases with cooler conditions. Most of the deciduous trees are in the south, within the Boreal Transition Ecoregion. Typical deciduous trees are trembling aspen, white birch and balsam. Coniferous species include white spruce, black spruce, jack pine and tamarack. There are extensive peatlands and some wetlands.

Wildlife

There is a high species richness in this ecozone.

Birds found here include the raven, great gray owl, gray jay, blue jay, ruffed grouse and common loon.

Mammals found in this ecozone include black bears, moose, white-tailed deer, elk, woodland caribou, muskrats, wolves, beaver, least chipmunks, red squirrels and northern long-eared bats.

Ecoregions of the Boreal Plain Ecozone

The Boreal Plain Ecozone is divided into three ecoregions: Boreal Transition, Mid-boreal Upland and Mid-boreal Lowland ecoregions.

Boreal Transition Ecoregion

The Boreal Transition Ecoregion represents a transitional area between boreal forest to the north and grasslands to the south. It is a large area of undulating to gently sloping plains. In several instances, uplands of the Mid-Boreal Upland Ecoregion interrupt this ecoregion.

Unlike the other ecoregions in this ecozone, agriculture is a major land use in the Boreal Transition Ecoregion, with nearly 50% of the lands under cultivation.

There is greater diversity and richness of mammals in the Boreal Transition Ecoregion than in the aspen parkland to the south, but it is not as great as in other parts of the Boreal Plain Ecozone. Mammals include white-tailed deer, moose, elk, black bear, beaver, red squirrel, raccoon and coyote.

Mid-boreal Lowland Ecoregion

The Mid-Boreal Lowland Ecoregion, as the name implies, represents the nearly level, low-lying part of the Boreal Plain

Ecozone. This lowland area is dominated by fens and other peatlands, with lesser amounts of woodlands, rock and open water.

Less than 10% of this area is used for agricultural purposes.

Mammal populations of this ecoregion are relatively high, reflecting a more favourable climate and greater diversity of vegetation than occurs in most parts of the boreal forest and taiga regions in the province. Although the diversity of mammals is relatively low, populations of some species, such as moose, are the highest in the province. Black bear, white-tailed deer, elk, beaver, muskrat, woodland caribou, red squirrel and porcupine also inhabit this ecoregion.

Mid-boreal Upland Ecoregion

The Mid-boreal Upland Ecoregion includes rolling uplands and undulating plains in the north, as well as prominent rolling uplands in the south. It is a large area, with a major block that extends westward from the east central part of the ecozone, as well as several pockets in the south and eastern part of the ecozone. It is characterized by a mosaic of forests, open and treed fens, bogs and water.

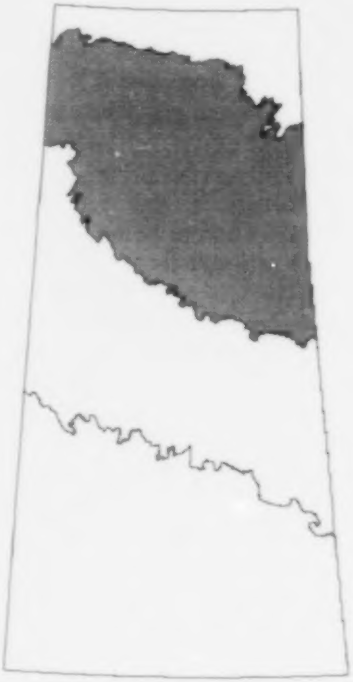
A combination of cold climate, sandy soils, and hilly topography has limited agricultural development to less than 10% of the area.

Moose and black bear are common in the northern part of the ecoregion. Woodland caribou are less common. There is greater diversity southward, including white-tailed deer, mule deer and elk. Other mammals include muskrat, wolf, beaver, meadow vole, northern flying squirrel and least chipmunk.

Boreal Shield Ecozone

The Boreal Shield Ecozone extends in a broad band across much of Canada, from Newfoundland to just inside Alberta. As the name implies, the Boreal Shield Ecozone represents boreal forest associated with the Canadian shield.

In Saskatchewan, this ecozone extends north from the Boreal Plain Ecozone to the Taiga Shield Ecozone, between the Alberta and Manitoba borders. It makes up about one-third of the province. The northern boundary runs in a southeasterly direction from approximately 125 km south of the Northwest Territories border in the west to the northern shore of Reindeer Lake in the east. This ecozone is characterized by Precambian rock outcrops, numerous lakes and wetlands, and coniferous forest. Some deciduous trees occur on the more favourable sites.



The Boreal Shield Ecozone of Saskatchewan

Climate

The Boreal Shield Ecozone has a subarctic climate. Winters are long and very cold; they last about seven months. Summers are short and cool, with many hours of daylight.

Landforms

This ecozone is dominated by a mixture of broadly rolling uplands and many wetlands. The lowest area is near Lake Athabasca in the Athabasca Plain Ecoregion.

Human Activity

The economy of the Boreal Shield Ecozone is based on its natural resources. Major land uses include mining (uranium, gold and other heavy metals), forestry, hunting, trapping, fishing and wild rice production.

Less than 1% of Saskatchewan's population lives in the Boreal Shield Ecozone.

Vegetation

Coniferous forest typically covers this ecozone, where soil and moisture conditions permit. Black spruce, the dominant species in this ecozone, grows on good soil that has not been disturbed by fire or other changes, with a ground cover of lichens. Both jack pine and spruce are found on thin, sandy soils. Tamarack and black spruce occur on poorly drained sites. Frequent wildfires promote the spread of jack pine and encourage the growth of the few deciduous trees, such as birch, trembling aspen and balsam poplar.

Wildlife

Birds found in the Boreal Shield Ecozone include the raven, gray jay, spruce grouse and boreal chickadee.

Wildlife population and richness varies markedly within this ecozone and is considerably higher in the Churchill River uplands than in the Athabasca plain, reflecting greater diversity of plant life and, consequently, more varied habitat for animals and birds. Moose, woodland caribou, black bear, lynx, caribou, wolf, beaver, river otter, mink, fisher, marten, snowshoe hare, red squirrel and masked shrew are representative of the area. Barren-ground caribou may occasionally winter in this part of the province.

Ecoregions of the Boreal Shield Ecozone

The Boreal Shield Ecozone is divided into two ecoregions: Athabasca Plain and Churchill River Upland ecoregions.

Churchill River Upland Ecoregion

The Churchill River Upland Ecoregion is a beautiful area with hundreds of small, clear lakes with broken shorelines connected by rapid streams.

Moose and black bear are common here. Woodland caribou are not common, but are more plentiful here than in any other ecoregion. Barren-ground caribou may winter occasionally between Cree and Wollaston lakes. Other mammals include masked shrew, snowshoe hare, beaver, muskrat, river otter, porcupine, northern flying squirrel, least chipmunk, woodchuck and deer mouse. Predators include the wolf, red fox, mink, marten, least weasel, lynx and striped skunk.

Athabasca Plain Ecoregion

Wildlife diversity and populations are low here, compared to elsewhere on the boreal shield, and few distinctive species occur. The dry uplands provide poor habitat for most species; however, the riparian areas have diverse, abundant vegetation that attract many mammals and birds. The low diversity of fauna is the result of a harsh environment created by adverse climate; sandy, shallow soils; and high fire frequency.

Moose and black bear live here. A low

population of woodland caribou is also present, and barren-ground caribou are sometimes found wintering here when food is scarce further north. The meadow vole and masked shrew are found in damp coniferous forest, while the deer mouse prefers a dry habitat associated with lichen forest. Due to limited hardwoods, beaver populations are limited. Other mammals include the little brown bat, porcupine, woodchuck, northern flying squirrel, snowshoe hare and river otter. Predators include the wolf, least weasel, lynx, wolverine and marten. A few species — coyote, mule deer and big brown bat — are found only in the western third of the ecoregion.

Taiga Shield Ecozone

The Taiga Shield Ecozone extends across either side of Hudson Bay, from Labrador to the Northwest Territories.

In Saskatchewan, this ecozone extends north from the Boreal Shield Ecozone to the Northwest Territories, between the Alberta and Manitoba borders.

The taiga shield, the land of the "little sticks" and innumerable lakes, is a vast, broadly rolling plain. This ecozone is characterized by Precambrian rock outcrops and stunted coniferous trees growing amongst a carpet of lichens and numerous lakes.

Climate

The climate of this ecozone varies from subarctic in the south to arctic in the north. The very cold winters are seven to eight months long. Summers are short and cool, with many hours of daylight.

Landforms

This ecozone is essentially a series of broad uplands and accompanying lowlands, with outcrops of Precambian rock. There are many lakes and streams, which flow either towards Hudson Bay or the Beaufort Sea.

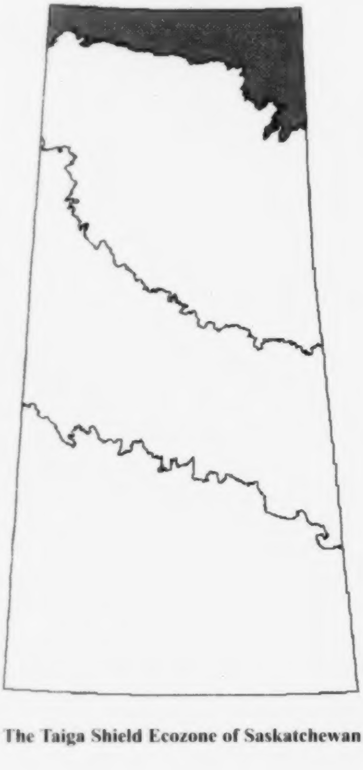
Human Activity

Land uses include mineral exploration, hunting, trapping and fishing. Because of the climate and soil conditions, the Taiga Shield Ecozone is not suited to agriculture or commercial forestry.

Less than 0.1% of Saskatchewan's population live in the Taiga Shield Ecozone.

Vegetation

Colder regions are dominated by lichen woodland, characterized by lichens carpeting the forest floor within stands of widely spaced black spruce trees. In very dry locations, there may be large bare patches with little or no vegetation. Warmer areas support more closely spaced stands of less stunted coniferous trees. Peatlands typically cover low areas.



The Taiga Shield Ecozone of Saskatchewan

Wildlife

The taiga shield has the least productive and lowest number of wildlife species of any ecozone in the province, reflecting the harsh climate and lack of diversity in vegetation. The eastern part is particularly low, with somewhat higher productivity and species richness associated with the slightly warmer climate and more diverse vegetation to the west.

Bird species often found in this ecozone include spruce grouse, gray jay, boreal chickadee, ruby-crowned kinglet and red-throated loon.

Representative mammal species include the black bear, moose, barren-ground caribou (winter range), snowshoe hare, wolf, beaver, lynx, masked shrew, least chipmunk and red squirrel. Many of the mammals found in the Taiga Shield Ecozone are also found further south in the Boreal Shield and Boreal Plain ecozones. These include lynx, wolf and wolverine.

Ecoregions of the Taiga Shield Ecozone

The Taiga Shield Ecozone is divided into two ecoregions: Tazin Lake Upland and Selwyn Lake Upland ecoregions.

Tazin Lake Upland Ecoregion

Populations of mammals are low, but there is a larger number of species here than in the Selwyn Lake upland, due to a greater diversity in plant communities. Black bear and moose occur here. Barren-ground caribou migrate into the ecoregion, but less frequently and in smaller numbers than in the Selwyn Lake upland. Other mammals include beaver, snowshoe hare, red squirrel, wolf, wolverine, marten, lynx and red fox.

Selwyn Lake Upland Ecoregion

Mammal populations are low due to the severe climate and resulting low diversity of vegetation. Black bear and moose occur here. Barren-ground caribou can be found wintering in this ecoregion during most years. Other mammals include snowshoe hare, red fox, wolverine, marten, wolf and mink.

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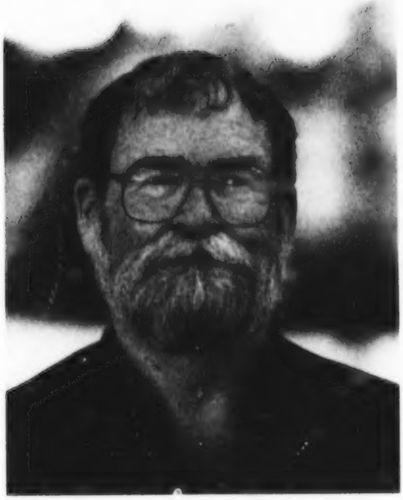

Paul Geraghty has produced exhibits and artwork for Canada's major museums, including the Royal Ontario Museum, the Ontario Science Centre, and the Canadian Museum of Nature. His work is also found in National Parks and Interpretive Centres across Canada. For more than twelve years he has done work for the Royal Saskatchewan Museum in Regina, including dioramas and hundreds of illustrations of Saskatchewan's flora and fauna. He was chosen to make drawings of Saskatchewan's fauna for the use of SERM, including the cover and illustrations for this book.

"I have spent half a century looking at animals in nature. They are so suggestive, foreshadowing us. Under the evolutionary laws, without whimper or regret, they live out their lives with unflagging zest. This is refreshing, and an encouragement to me."

Paul Geraghty

This book is one of several planned for a Discover Saskatchewan sub-series on the flora and fauna of Saskatchewan. This first book, *Natural Neighbours: Selected Mammals of Saskatchewan*, focuses on selected mammals found in Saskatchewan. The mammals chosen for this book tend to be widely distributed in the province, the most well known by the public and the most likely to be seen. A few species occur only in southern Saskatchewan, but are fairly unique and/or endangered. The book describes the appearance, habits, food, habitat, survival strategies, ecological relationships, status and range of these mammals.

***Natural Neighbours* is an updated version of the Resource Reader, published in the late 1960s and widely used in schools. The Resource Reader was developed at a time when ecosystem-based management was not as much a part of environmental and resource management as it is today. *Natural Neighbours* was developed not only to give information on species, but also to promote a better understanding of our human partnership with the environment, which requires that we think, plan and act in terms of ecosystems.**

This book on mammals describes and illustrates the richness of Saskatchewan animal life and the unique place these animals have in the different ecosystems and landscapes of the province. The book describes, where possible, places where you may observe these animals if conditions are right and if the fates agree your paths should cross.

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